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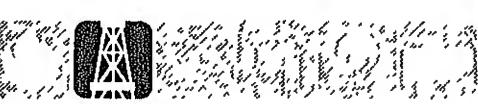
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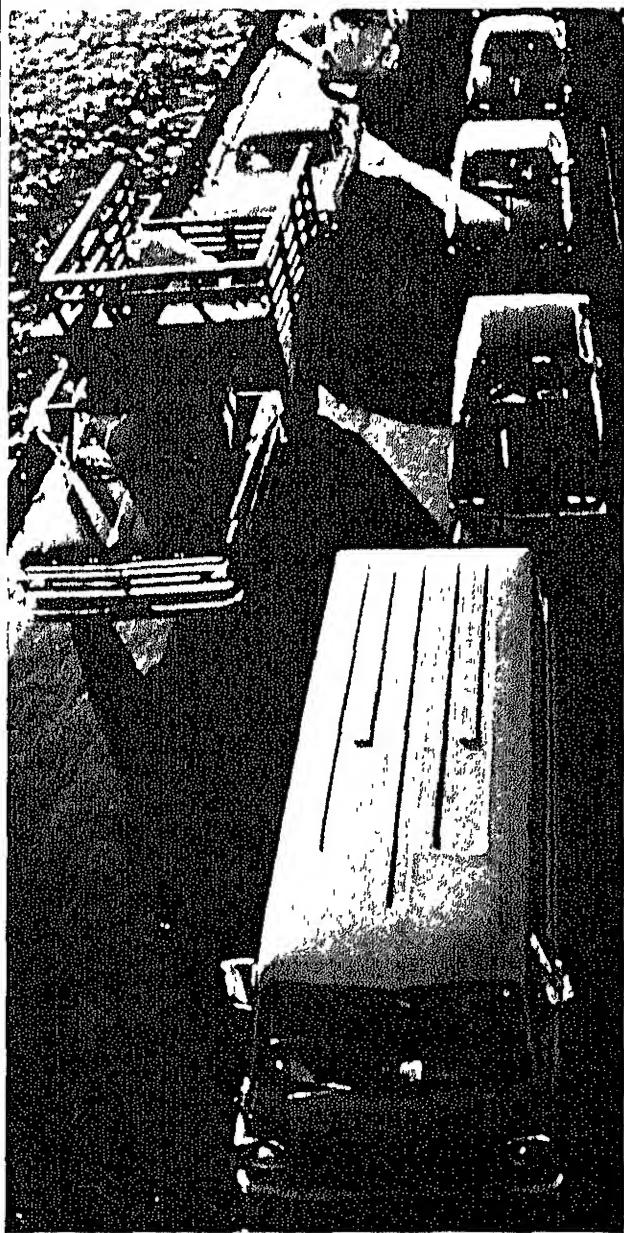




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# Focus





# Petroleum Supply Summary

Average Volume for Period (Million Barrels Per Day)	March			Cumulative January Through March		
	1984	1983	% Change	1984	1983	% Change
<b>Products Supplied</b>						
Motor Gasoline	6.5	6.8	– 5.4	6.3	6.3	0.6
Distillate Fuel Oil	3.1	2.9	6.1	3.1	2.8	11.0
Residual Fuel Oil	1.4	1.6	– 7.8	1.7	1.6	6.9
Other Products	4.6	4.2	9.1	4.8	4.3	9.9
<b>Total</b>	<b>15.5</b>	<b>15.5</b>	<b>0.4</b>	<b>15.9</b>	<b>15.0</b>	<b>5.9</b>
<b>Crude Inputs to Refineries</b>	<b>12.0</b>	<b>10.9</b>	<b>10.6</b>	<b>11.9</b>	<b>10.9</b>	<b>9.5</b>
<b>Production</b>						
Crude Oil, Natural Gas Liquids, and Other <sup>1</sup>	10.4	10.3	1.4	10.4	10.3	0.6
<b>Imports</b>						
Crude Oil <sup>2</sup>	3.4	2.0	67.6	3.0	2.3	33.1
SPR	0.2	0.2	– 14.4	0.2	0.2	– 25.2
Products	1.6	1.4	12.3	2.2	1.4	53.9
<b>Total</b>	<b>5.1</b>	<b>3.6</b>	<b>41.8</b>	<b>5.4</b>	<b>3.9</b>	<b>37.6</b>
<b>Exports</b>						
Crude Oil	0.2	0.2	6.3	0.2	0.2	– 4.4
Products	0.4	0.6	– 36.7	0.4	0.7	– 41.8
<b>Total</b>	<b>0.6</b>	<b>0.8</b>	<b>– 27.3</b>	<b>0.6</b>	<b>0.9</b>	<b>– 34.1</b>
<b>Stock Withdrawal</b>						
Crude Oil <sup>2</sup>	0.2	0.2	—	0.1	– 0.1	—
Products	0.2	1.8	—	(s)	1.3	—
<b>Stocks at End of Period (Million Barrels)</b>						
<b>Crude Oil</b>						
SPR	392	312	25.6			
Other	332	359	– 7.3			
<b>Total</b>	<b>724</b>	<b>670</b>	<b>8.0</b>			
<b>Products</b>						
Motor Gasoline <sup>3</sup>	242	224	7.8			
Distillate Fuel Oil	113	119	– 5.2			
Residual Fuel Oil	48	46	2.7			
Other	307	316	– 2.8			
<b>Total</b>	<b>709</b>	<b>705</b>	<b>0.5</b>			
<b>Total Crude Oil and Products</b>	<b>1,433</b>	<b>1,375</b>	<b>4.2</b>			

1 Includes alcohol and other hydrocarbon liquids.

2 Excludes Strategic Petroleum Reserve (SPR).

3 Including blending components.

(s) = Less than 0.05 million barrels per day.

NOTE: Percent changes are based on unrounded values. March 1984 data are estimates based on weekly data, except for exports, NGL production, other hydrocarbons, and alcohol which are February 1984 monthly values. Totals may not be equal to sum of components due to independent rounding.

Source: Energy Information Administration, Petroleum Supply Monthly, February 1984.



# Motor Gasoline Outlook for Summer 1984

Like the economy, the Nation's highways are expected to be busier this summer than last. As a result, 1984 summer motor gasoline demand should be slightly above last summer's level and its highest since 1979. However, because of improved new car sales and overall fleet efficiency, motor gasoline demand is expected to increase less than vehicle mileage. Because crude oil supplies and excess refinery capacity are readily available for motor gasoline production, no supply problems are anticipated for the 1984 summer driving season.

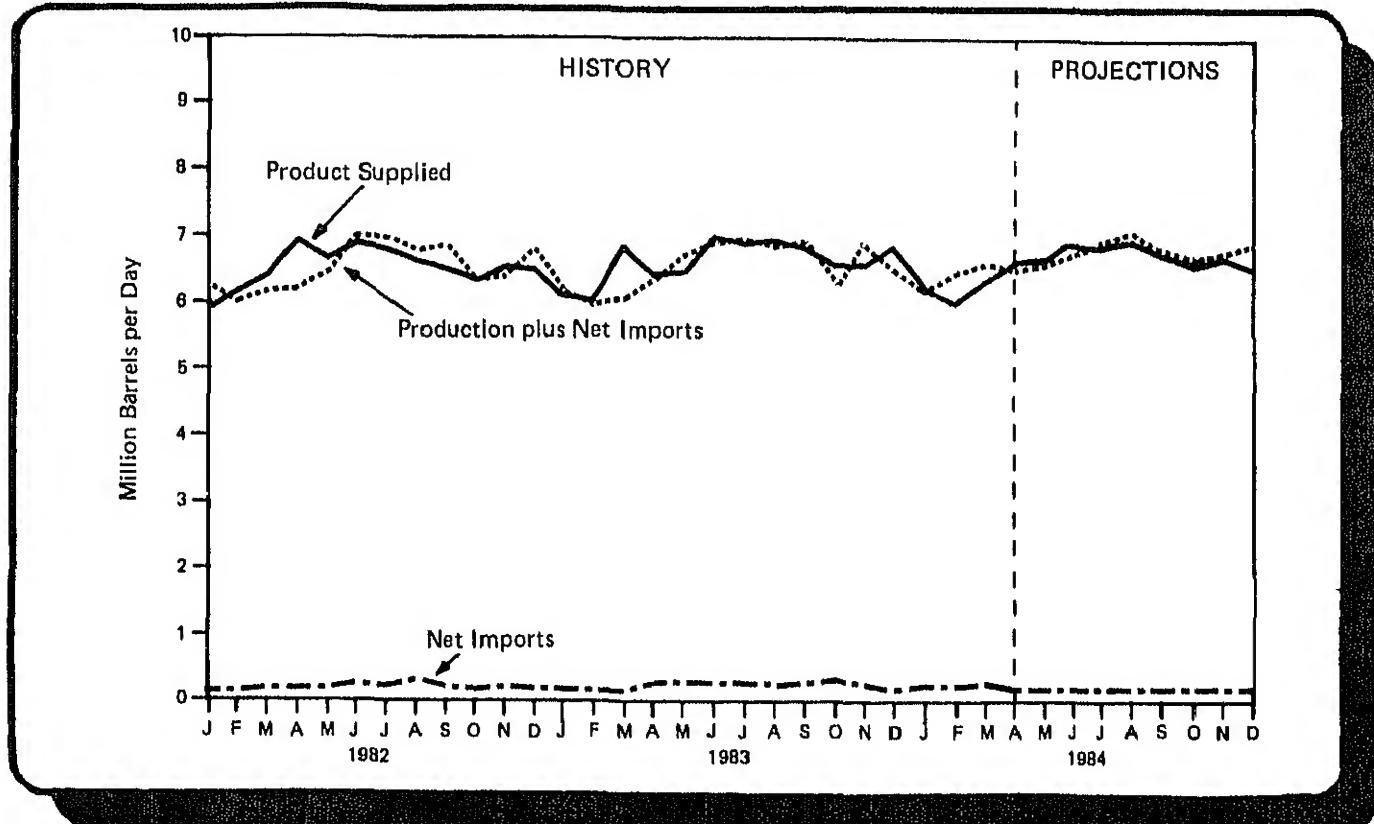
According to the Energy Information Administration's Short-Term Integrated Forecasting System, demand for motor gasoline is expected to range between 6.8 and 7.0 million barrels per day for the summer months (June, July, and August) of 1984. The level of demand will depend on economic activity, crude oil prices, and gasoline prices. The average retail motor gasoline price could range from \$1.12 to \$1.30 per gallon, depending on the course of the economic recovery and crude oil prices. However, if the average gasoline price remains around \$1.22 or \$1.23 per gallon (a decline in the real price), demand for motor gasoline this summer is forecast to be 7.0 million barrels per day. About 60 percent of the demand will be for unleaded gasoline.

Automobile travel in 1984 is expected to increase because of growth in real disposable personal income and industrial production and because of declines in the real price of gasoline. Between 1983 and 1984, real disposable income and industrial production are projected to grow 4.6 percent and 9.9 percent, respectively. The real price of gasoline is projected to decline 4.5 percent. Because of the strength of the economy, new car sales are expected to be strong, exceeding 10 million units in 1984. New cars have improved fuel efficiencies, and they require less gasoline per mile traveled. As more miles are traveled in newer cars and as new cars replace older cars, the average fleet efficiency improves. This means passenger car mileage will respond more to economic recovery than will gasoline demand.<sup>1</sup>

Motor gasoline is supplied through domestic refining and blending, imports, and withdrawal from stocks (see Figure 1). Production at refineries and gasoline blending plants accounts for more than 95 percent of supply. This summer, motor gasoline production is expected to average 6.7 million barrels per day, about 1 percent greater than the rates of 1982 and 1983 and about 5 percent greater than the rate in 1981.

<sup>1</sup>Energy Information Administration, *Short-Term Energy Outlook* (February 1984), DOE/EIA-0202 (84/1Q) (Washington, D.C., 1984).

Figure 1. Motor Gasoline Supply



Source: Energy Information Administration, "Petroleum Supply Monthly," and Short-Term Integrated Forecasting System.

The basic raw material for gasoline production is crude oil. Crude oil stocks at the end of March 1984 were 332 million barrels, about 7 percent below March 1983 stocks, but 47 million barrels above the minimum operating inventory of 285 million barrels estimated by the National Petroleum Council.<sup>2</sup> Crude oil was available during 1983 at an average price to refiners of \$28.99 per barrel, including imported crude oil which cost refiners, on average, \$29.35 per barrel. Crude oil inputs to refineries averaged 12.3 million barrels per day last summer and refineries operated at 74.5 percent of capacity while producing, on average, 6.6 million barrels per day of gasoline. It should be possible to reach a crude input level of 12.3 or 12.4 million barrels per day this summer from domestic supplies and crude oil imports. At such levels of inputs, refinery utilization rates would be higher than last year's rates because capacity now is about 500,000 barrels per day less than capacity last summer.

During the 1983 summer driving season, net imports of motor gasoline were higher than in any driving season in the past 10 years. They averaged 256,000 barrels per day, but still represented only 4 percent of supply. Summertime imports came primarily from the Virgin Islands, Venezuela, and the Netherlands. Most imports came to the East Coast. Net imports this summer are expected to return to lower levels—around 180,000 barrels per day.

In line with recent trends toward careful inventory management, refiners and distributors are expected to keep summer gasoline inventories below the levels of recent years, but adequately above minimum operating levels.

This year, primary stocks did not follow the usual pattern of accumulation to a February peak. However, gasoline stock levels at the end of March 1984 were slightly above stock levels a year earlier. Stocks fell in December 1983 and early in 1984 because extremely cold weather interrupted natural gas supplies to Gulf Coast refineries. The resulting refinery shutdowns caused sharply lower production levels on the Gulf Coast. Stock levels began to build again in early February. Stocks reached 237 million barrels at the end of February and 242 million barrels at the end of March. In contrast, stocks last winter were 251 million barrels at the end of February and then dropped sharply. Last March, 27 million barrels moved out of primary inventories before a new 5-cent-per-gallon Federal gasoline tax became effective on April 1, 1983.

The outlook for summer 1984 is for a moderate increase in demand for motor gasoline. Again this year, the demand will be met largely by current production, using readily available refining capacity and crude oil supplies. Imports and inventory changes will be used to a lesser extent to meet the difference. Because each region of the country except the East Coast produces enough motor gasoline to supply 80 percent of its demand, any possible distribution problems are likely to be short-lived and geographically limited.

<sup>2</sup>National Petroleum Council, *Petroleum Inventories and Storage Capacity—An Interim Report* (Washington, D.C., November 1983).



# Recent Motor Gasoline Trends

Events in recent years have added to the complexity of understanding and foreseeing changes in motor gasoline demand and supply. Since 1978 motor gasoline, like other petroleum products, has responded to crude oil price increases, regulatory changes, economic slowdown, and recovery. Changes associated with the increasing use of unleaded gasoline and declining use of leaded gasoline have also had an impact. This article describes recent trends in gasoline demand, supply, and prices; it also discusses some of the major factors contributing to these trends and likely to continue influencing the motor gasoline market.

## Motor Gasoline Demand

Motor gasoline demand (measured as product supplied) peaked at 7.4 million barrels per day in 1978 when demand for all petroleum products was at its highest level. Between 1978 and 1982, gasoline demand, like the demand for total petroleum products, declined. In 1983, gasoline demand was 1 percent above 1982 levels. Although smaller in absolute terms since 1978, motor gasoline's share of total petroleum demand has been growing. In 1983, demand for motor gasoline was 44 percent of the total demand for petroleum products. At this level, gasoline accounts for 5 percentage points more of total petroleum demand than it did in 1978.

In recent years, motor gasoline demand has moved with a number of short-run and long-run changes in prices and consumer choices. The demand for motor gasoline reflects primarily a demand for transportation. It has fallen whenever the price of gasoline increased and whenever economic activity declined. Drivers responded to price increases by driving less; they also responded to reductions in their incomes by driving less. In the short run, the engine types and fuel efficiencies of their cars, and continuing requirements for travel to work, school, or shop restrict drivers' ability to reduce gasoline consumption. But over a longer time period, drivers may consider other options if these are affordable and reliable. Drivers may reduce necessary transportation mileage by moving closer to travel destinations. As cars get older, drivers may replace them with more fuel efficient vehicles or perhaps with vehicles powered by some fuel other than gasoline.

New cars are notably more fuel efficient than the cars of the 1970's. Domestic automobile makers have been required to improve the fuel efficiency of their new vehicles under the Energy Production and Conservation Act of 1975. Corporate Average Fuel Economy (CAFE) standards require a sales-weighted new-car efficiency of 27.5 miles per gallon (mpg) by 1985, almost twice the 1975 average fuel efficiency. The average fuel efficiency of new cars was 27.4 mpg in 1982.<sup>1</sup> Although this almost matches the 1985 standards, preliminary 1983 data indicate that average new car efficiency declined in 1983 as consumers chose larger, less efficient new cars instead of smaller ones.

The average fuel efficiency of all U.S. cars remains much lower than new car efficiency because many older cars remain in the fleet. Economic slowdowns kept new car sales in the early 1980's below historic rates.<sup>2</sup> Average fuel efficiency of all U.S. cars was 16.3 mpg in 1982, compared to 14.1 mpg in 1978.<sup>3</sup>

Almost all new cars have gasoline engines. Except for diesel engines, engines using alternative fuels have not reached the mass market. Purchases of diesel-powered cars are limited because their initial cost is higher than that of gasoline-powered cars and because their performance has been considered poorer. In addition, diesel fuel prices have increased relative to gasoline prices since 1978, cutting the price incentive for switching. Diesel passenger cars still make up only about 2 percent of all passenger vehicles.<sup>4</sup> When compared to fuel-switching that occurred with residual fuel oil for electricity generation or distillate fuel oil for home heating, gasoline has been largely unaffected by fuel-switching. This is the primary reason why gasoline's share of total petroleum product demand has increased. Although the last few years have seen less fuel-switching for gasoline than for other petroleum products, this does not mean that fuel-switching will not occur. It may simply mean that the time span for change will be longer than once thought.

Although the demand for finished motor gasoline has declined since 1978, the relative demand for unleaded gasoline has grown from 34.0 percent of total finished gasoline demand in 1978 to 55.1 percent in 1983. The unleaded share of total gasoline demand grew 6 percent or more each year in the late 1970's, but has grown about 3 percent annually in the 1980's.

While use of unleaded gasoline continues to grow, various factors have contributed to a slowdown in the rate of growth. The key to the growth of unleaded gasoline use is new car sales, because most new cars are designed to run on unleaded fuel only. Leaded gasoline deactivates the catalytic converters that U.S. automobiles use to meet auto-emission standards. New car sales, however, fell sharply in 1981 and 1982 because of the economic recession. Many old cars remained on the road. Although older cars could use unleaded gasoline, leaded gasoline was offered at lower prices (see box, page xli). These circumstances discouraged growth of unleaded gasoline and supported sales of leaded gasoline.

<sup>1</sup>Energy Information Administration, *Annual Report of Energy Conservation Indicators for 1982* DOE/EIA-0441 (82) (Washington, D.C., January 1984) and *Supplement to Energy Conservation Indicators*.

<sup>2</sup>David L. Greene, "Highway Fuel Use: Trends and Factors," *Proceedings of the Energy Information Administration Symposium on Petroleum Supply Information*, DOE/EIA-0425 (Arlington, Virginia, August 1983), p. 197.

<sup>3</sup>EIA, *Annual Report of Energy Conservation Indicators for 1982* and *Supplement*.

<sup>4</sup>Greene, "Highway Fuel Use," p. 183.

# What is Motor Gasoline?

Motor gasoline is the liquid petroleum product most often used to fuel spark-ignition internal combustion engines in motor vehicles. It is a mixture of liquid hydrocarbons, usually containing 5 to 12 carbon atoms per molecule, which boils in the temperature range of 90 to 400 degrees Fahrenheit. It has a specific gravity of approximately 0.74. Within this general definition, gasolines differ in ways that are important to engine performance and therefore to gasoline marketing. Anti-knock and volatility properties are of particular importance. (See Glossary)

The anti-knock properties of a motor gasoline are measured by the octane number of the gasoline. Because iso-octane burns cleanly and evenly in combustion engines -- avoiding the explosions and losses of power which drivers notice as knocking -- and heptane burns poorly, other hydrocarbon streams are compared to blends of iso-octane and heptane to describe their anti-knock properties. A liquid doing as well as 100 percent iso-octane is assigned an octane value of 100. Another liquid might compare to an 80-20 mix of iso-octane and heptane, earning an octane number of 80. Octane numbers calculated in special test situations of mild operating conditions (the research (R) octane number) are averaged with octane numbers from more severe operating conditions (the motor (M) octane number) to produce the octane number posted on the gasoline pump (R+M)/2.

As automobiles were designed to be more powerful and efficient, their higher compression engines required higher octane values to prevent knocking. Gasoline distilled directly from crude oil did not satisfy the increasing octane requirements. This encouraged construction of additional complex facilities at refineries to manufacture more of the high octane components. However, the cheapest method for raising the octane value of gasoline was the addition of lead components such as tetraethyl lead (TEL) or tetramethyl lead (TML). Because adding these chemicals to liquid gasoline, which is naturally unleaded, was the inexpensive way to achieve desired octane levels, it was widespread. In 1970, however, Clean Air Act amendments were passed that regulated fuel additives to gasoline. Because of lead's toxicity and effect on automobile emission systems, the Act particularly established allowable levels of lead. The law defined leaded and unleaded gasoline and required that after July 1, 1974, all gasoline service stations of specific sizes offer for sale at least one grade of unleaded gasoline of not less than 87 octane (R+M)/2 method.

Unleaded gasoline was defined as gasoline containing not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Small refiners and blenders were allowed to produce leaded gasoline with higher lead content than large refiners until July 1, 1983. Permissible levels of lead were lowered in phases. Since mid-1983, no gasoline producer may produce leaded gasoline whose average lead content

during the calendar quarter exceeds 1.10 grams of lead per gallon of leaded gasoline. Interrefinery averaging of lead content is allowed and "lead rights" trading has developed to facilitate this.

Since the use of lead compounds for octane boosting is restricted, producers have been motivated to increase octane values through refinery processing and to find other permissible additives. There are many petroleum products with high octane properties; they include aromatics (such as benzene, toluene, and xylene), olefins, and isoparaffins. While very small quantities of these products are included in straight crude distillation outputs, the yield of these components is increased by downstream processing; i.e., the further processing of output from crude oil distillation units in facilities such as catalytic reformers, catalytic crackers, or hydro-crackers. These components are also produced in isomerization and alkylation facilities. Because of the need for additional equipment and processing, and also because of the alternative uses for these richer products as petrochemical feedstocks, they are expensive. Other less expensive octane boosters such as methanol, methyl tertiary butyl ether (MTBE), and blends of tertiary butyl alcohol and methanol are being promoted. In several states, alcohol-based additives receive special tax advantages.

In addition to their octane properties, gasolines are blended to have a range of volatilities. High volatility components help engines to start easily in cold weather, but can also vaporize too quickly, causing vaporlock and fuel line blockages. Low volatility components do not ignite as easily, but have a higher energy content and are more economical. The proportions of high, medium, and low volatility components are adjusted according to altitude, climate, and season.

Other performance features of gasolines are enhanced with other additives. Detergents are used to keep carburetors and other engine parts clean and performing well. Anti-icing additives keep fuel lines and carburetors from developing ice. Still other additives protect against rust, corrosion, gum, and engine wear.

The gasoline that a driver uses to fill his tank represents a choice among many types of gasolines. The choice is most certainly affected by the performance objectives for the vehicle and by the driver's pocketbook.

In addition, in a series of annual studies, the Environmental Protection Agency (EPA) reports that some new cars have been "misfueled"; i.e., fueled with leaded gasoline although they were designed for unleaded gasoline (with a catalytic converter). The amount of gasoline improperly used is difficult to estimate. In the 1982 EPA study, misfueling was suspected (because of the presence of lead in exhaust pipes) in 10.6 percent of the automobiles and trucks tested.<sup>5</sup> Because misfueling is hard to measure precisely, EPA considers evidence of physical tampering more conclusive. In the same study, 16.7 percent of the vehicles had some sign of tampering; trucks showed more signs of tampering than automobiles. The EPA proposes that the motivations for these actions are lower prices and the perception of enhanced performance, because the leaded regular gasoline has a higher octane rating than unleaded regular gasoline.

Further growth in demand for unleaded gasoline and decline in demand for leaded gasoline will depend on new car sales, retirements of older cars, and limits on misfueling. To hasten this process, the EPA is considering accelerating its schedule, which now phases out leaded gasoline production in the early 1990's.

Except for the growth in demand for unleaded gasoline, patterns of regional gasoline demand followed national trends in the past 5 years. Demand for motor gasoline fell about the same degree in all regions; the relative demand position of the regions did not change. Petroleum Administration for Defense (PAD) Districts I and II, the East Coast and Midwest, account for about two-thirds of national demand—in 1983, 33 and 32 percent, respectively.

The same year, PAD Districts III and V, had virtually equal shares of demand, 15 and 16 percent, respectively. PAD District IV, the Rocky Mountains, represents about 3 to 4 percent of national demand. Although the national demand for unleaded gasoline passed the 50 percent mark in 1982, demand for unleaded gasoline remained below 50 percent in the Midwest and Rocky Mountain districts. Since then unleaded gasoline demand has passed leaded gasoline demand in the Midwest, but has not yet passed it in the Rocky Mountain district.

Because gasoline is used for passenger vehicles, light trucks, small recreational vehicles, boats, and lawnmowers, the demand is moderately seasonal. Demand is highest in the summer months, corresponding to use for vacation travel and recreational vehicles.

### **Motor Gasoline Supply**

Motor gasoline is supplied in the United States from a combination of current production, imports, and stock withdrawal. The United States produced about 95 percent of its 1983 demand, imported about 4 percent, and reduced stocks for the remaining 1 percent.

Finished motor gasoline production occurs at refineries and at gasoline blending plants where gasoline components are combined. These components include a large number of hydrocarbon streams (low and high octane gasoline, naphthas, and natural gas liquids) produced at petroleum refineries, petrochemical plants, and natural gas processing plants. In many cases, additives that are not petroleum-based (e.g., lead) are included to enhance performance characteristics (see accompanying box).

Gasoline production occurs at large and small facilities throughout the United States. In December 1983, 184 refineries and gasoline blending plants reported production of finished motor gasoline on EIA-Form 810, "Monthly Refinery Report." Most of these facilities reported production of both leaded and unleaded gasoline. Of the 184 facilities, 183 reported finished leaded gasoline production and 163 reported finished unleaded gasoline production.

Twenty-two facilities produced more than 50,000 barrels per day of unleaded gasoline; only six reported leaded gasoline production at this rate. Of the facilities with any unleaded gasoline production, 41 percent produced less than 10,000 barrels per day; of the facilities producing leaded gasoline, 45 percent produced less than 10,000 barrels per day. Twenty facilities reported that they produced only leaded gasoline. Eighteen of these facilities produced under 10,000 barrels per day. Between January 1983 and December 1983, there was a net decline of 11 gasoline production facilities.

In recent years, regulatory changes have affected the number of facilities for gasoline production. The number of refineries and blending facilities peaked at 324 on January 1, 1981. An important factor in the growth in the number of refineries between 1974 and 1981 was the existence of the Crude Oil Entitlements Program. This program assured and subsidized the acquisition of crude oil by small refiners. Large numbers of small refiners shut down after crude oil prices were decontrolled and the Entitlements Program was terminated in 1981. On January 1, 1983, there were 258 operable refineries.

Another important regulatory factor has affected gasoline production directly. Until July 1, 1983, small refineries and blenders were allowed to have higher lead content in their leaded gasoline outputs than larger refineries.<sup>6</sup> This meant the small refineries could rely more on inexpensive lead additives to achieve marketable octane levels. The intent was to give small facilities that produced low octane gasoline streams time to

<sup>5</sup>Larry Walz, *Motor Vehicle Tampering Survey-1982*, National Enforcement Investigations Center, EPA-3301-83-001 (Denver, Colorado, April 1983).

<sup>6</sup>Small refineries were those facilities that were in operation or under construction before October 1, 1976; produced 10,000 barrels of gasoline or less each compliance period (usually a quarter); and were not owned or controlled by any refiner that had a total combined average daily production of greater than 70,000 barrels of gasoline during any compliance period after July 1, 1981.

upgrade or find alternative supplies. In the meantime, they would not have to meet the same lead standards as larger facilities and could continue to produce. Since July 1, 1983, all sizes of refineries must meet the same lead limits. It is possible, however, for refineries that do not use the full 1.1 grams of lead per gallon in their leaded gasoline to trade their excess "lead rights" to refineries that have lead levels exceeding the limit, achieving an interrefinery average of 1.1 grams per gallon.

About 44 percent of the Nation's gasoline was produced in the Gulf Coast region in 1983. The Midwest region accounted for another 28 percent and the West Coast, East Coast, and Rocky Mountain regions follow in that order. This ranking has been unchanged for many years. In 1983, the Rocky Mountain region was the only one where production of leaded gasoline exceeded production of unleaded gasoline.

Nationwide, finished gasoline represents 47 to 49 percent of refinery production. Gasoline's share of total refinery production has increased with the development and widespread construction of downstream processing facilities. Before the introduction of the first of these downstream processes, cracking, just before World War I, gasoline was only about 15 percent of refinery output. In 1983, gasoline's share of total production ranged from 43 to 57 percent in the different districts. At some facilities, gasoline represents more than 60 percent of output. Facilities are able to achieve high levels of gasoline output by having extensive downstream capacity. The percentage of finished gasoline may also be raised by methods that do not depend on capital equipment. When lead is added to raise octane levels, a larger proportion of the gasoline-range hydrocarbon stream can be finished and made marketable.

Because gasoline production was unchanged between 1982 and 1983, the small increase in gasoline demand was supplied by additional imports and stock withdrawals. Finished gasoline imports were 249,000 barrels per day in 1983—small by comparison with residual fuel oil, but still a record level. Gasoline exports were 10,000 barrels per day. Imports of finished gasoline came into this country from 28 locations outside the United States (50 States and District of Columbia). The leading countries of origin (or shipment) were the Virgin Islands, Venezuela, the Netherlands, and Romania. The Virgin Islands, Venezuela, and the Netherlands have been important sources for several years. Leaded gasoline accounted for 53 percent of the 1983 finished gasoline imports. Gasoline blending components were also imported in small quantities—about 36,000 barrels per day.

Gasoline stock levels during 1983 were highest in January and February. This is the usual pattern for primary stocks—gradual buildup of stocks through the fall and winter for drawdowns in spring and summer. Last year stocks fell especially sharply—27 million barrels—in March because a new Federal gasoline tax became effective April 1. After the spring drawdown, gasoline stocks remained about the same as in 1982. The stock levels of 1982 and 1983 were, however, lower than levels of 1980 and 1981. Lower stock levels have become desirable as inventory carrying costs have increased and

crude oil supplies have become more certain. Reflecting these changes the National Petroleum Council lowered its estimate of the national minimum operating level for total gasoline (including blending components) to 200 million barrels in November 1983, down from its 1979 estimate of 210 million barrels.<sup>7</sup>

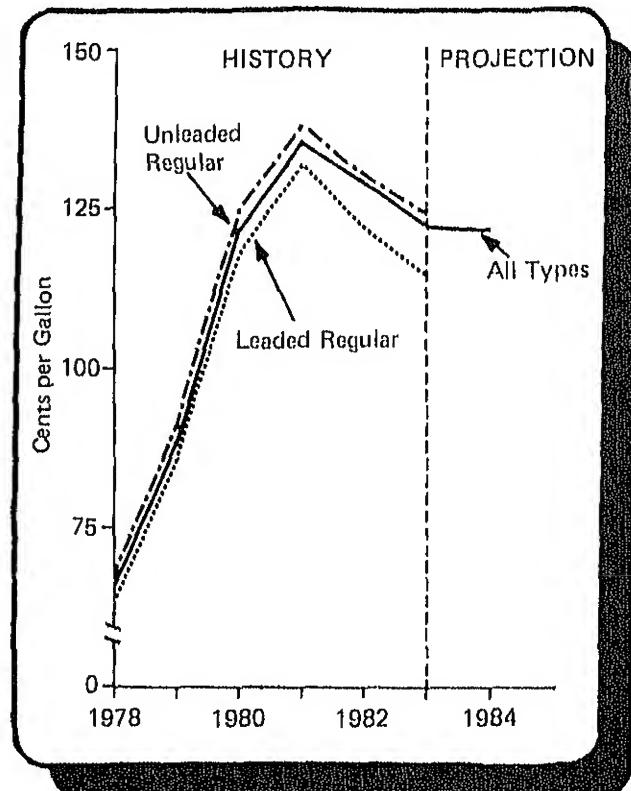
Because regional gasoline production and demand levels do not necessarily correspond, gasoline is transported between regions by pipelines, tankers, and barges. The East Coast and Midwest receive large shipments of gasoline from the Gulf Coast. Most of the gasoline travels by pipeline, but one-fifth of East Coast receipts arrive in the Southern Atlantic region by water.

### Motor Gasoline Prices

Gasoline prices have been front-page news in recent years. Between 1978 and their peak in 1981, retail prices increased 108 percent in nominal terms and 60 percent in 1972 dollars. Since then, gasoline prices have fallen in both nominal and real dollar measures. Average retail gasoline prices in 1983 averaged \$1.22 per gallon, compared with \$1.35 in 1981 (see Figure 1). (Prices in 1983 were 57 cents more per gallon than in 1978, but this was

<sup>7</sup>National Petroleum Council, *Petroleum Inventories and Storage Capacity*.

Figure 1. Motor Gasoline Prices (Nominal)



Source: Energy Information Administration, "Monthly Energy Review," "Weekly Petroleum Status Report," and "Short-Term Energy Outlook."

only 31 percent more in 1972 dollars.)<sup>8</sup> The recent declines in gasoline prices are good news for consumers, because motor gasoline is the most widely consumed petroleum product in the United States.

Gasoline prices are determined by the interaction between demand and supply. They depend on what consumers are willing to pay and on what it costs producers and suppliers to bring the product to the consumer. These costs include the taxes levied by Federal, State, and local governments. The Federal Government tax on gasoline is now 9 cents a gallon, raised by 5 cents on April 1, 1983. Fifty States and the District of Columbia have State taxes that range from 5 cents per gallon in Texas to 16 cents per gallon in Minnesota and Washington.<sup>9</sup> Several States and localities also levy sales (percentage) taxes. In most States, motor fuel taxes fund highway construction, maintenance, and safety programs.

In different time spans, consumers are able to respond to higher price in different ways. Since 1978, they have reduced passenger car mileage and continued to purchase new fuel-efficient autos. They have switched to self-service retailing and have reduced their purchases of premium gasoline. They have also increased the frequency of misfueling.

On the supply side, there have been several events affecting costs in the years since 1978. Costs of supply include raw material costs, production costs, storage costs, and marketing costs.

- Following the Iranian revolution, the price of crude oil, as measured by the composite refiner acquisition cost, increased from \$12.46 per barrel in 1978 to \$35.24 in 1981 before falling back to \$28.99 per barrel in 1983.
- The number of refineries declined from 302 to 258. Most of the refineries that closed were smaller and older refineries.<sup>10</sup>
- The cost of holding inventories increased because interest rates increased. If inventories are acquired with borrowed funds, the loan charges are high. If a company's cash is used to acquire gasoline, the foregone earnings are high. In both cases, companies have an incentive to review and minimize their precautionary inventory requirements.<sup>11</sup> The results are seen in the lower inventories of the last 2 years.
- The number of retail outlets declined 19 percent, compared to a decline in consumption of 11 percent. This concentration of gasoline outlets means the average outlet is selling more.<sup>12</sup>

The net effect of these changes should be to reduce the number of marginal producers and distributors and to enhance economies of scale for those that remain.

Retail gasoline prices vary across the country and by season. Different state and local taxes are an important reason for the regional price differences, but transportation costs between the refinery and retail outlet are important also. In 1983, Anchorage, Washington, D.C., and Honolulu had the highest retail gasoline prices of

the cities surveyed by the Bureau of Labor Statistics. Houston, Dallas, St. Louis, and Kansas City consistently have the lowest retail prices.<sup>13</sup> Both regionally and nationally, gasoline prices are usually highest in the summer when demand is also highest.

The retail price of gasoline varies for each type. Prices ascend from leaded regular through unleaded regular and leaded premium to unleaded premium (refer to Figure 1). The prices of leaded gasolines and regular gasolines are lower, respectively, than the prices of unleaded gasolines and premium gasolines. Both unleaded and premium gasolines have higher proportions of the petroleum-based high octane components (see box). Leaded regular gasoline is about 6 to 8 cents cheaper than unleaded regular gasoline. Compared to their prices in 1978 (the first year of the unleaded index), the 1983 prices for the two types of gasoline have increased to the same extent. Through 1982, however, the price of unleaded regular gasoline increased slightly less than the price of leaded regular gasoline each year (see Table 1).

**Table 1. Gasoline Price Trends, 1978-1983  
(Index 1978 = 100)**

Year	All Types	Leaded Regular	Unleaded Regular
1978	100	100	100
1979	135	137	135
1980	187	190	186
1981	208	209	206
1982	196	195	193
1983	188	185	185

Source: Energy Information Administration, "Monthly Energy Review," and "Weekly Petroleum Status Report."

In the first months of 1984, retail gasoline prices were little different from prices in the closing months of 1983. The *Short-Term Energy Outlook* (February 1984) assumed that the effects of the various demand and supply factors would leave the nominal price of gasoline unchanged for the remainder of 1984 and would lower the real price 4.5 percent.

<sup>8</sup>Prices and Gross National Product deflators are from *Short-Term Energy Outlook* (February 1984) and Energy Information Administration, 1982 Annual Energy Outlook, DOE/EIA-0383(82) (Washington, D.C., May 1983).

<sup>9</sup>Energy Information Administration, *Petroleum Marketing Monthly* DOE/EIA-0380(83/12(2)) (December 1983(2)), p. 90.

<sup>10</sup>Elizabeth E. Campbell, "Trends in Refinery Capacity and Utilization," *Proceedings of the Energy Information Administration Symposium on Petroleum Supply Information*, DOE/EIA-0425 (Arlington, Virginia, August 1983).

<sup>11</sup>Richard D. Farmer, "Minimum Operating Inventories for Gasoline, Distillate Fuel Oil, and Residual Fuel Oil," *Proceedings of the Energy Information Administration Symposium on Petroleum Supply Information*, DOE/EIA-0425 (Arlington, Virginia, August 1983).

<sup>12</sup>Bureau of Industrial Economics, U.S. Department of Commerce, *Franchising in the Economy, 1981-1983* (Washington, D.C., January 1983).

<sup>13</sup>Bureau of Labor Statistics, U.S. Department of Labor, "Consumer Prices: Energy and Foods," monthly release (Washington, D.C.).

# New Patterns Emerging in U.S. Petroleum Imports and Exports

Recent trends in total petroleum demand—Influenced by the recession and current economic recovery as well as by declining world oil prices—have combined to effect significant changes in the volumes, qualities, sources, and destinations of this Nation's foreign trade in crude oil and refined products.

For example, from 1978, the peak year for domestic petroleum consumption, through 1983:

- The average annual rate of gross crude oil imports declined by 3.1 million barrels per day.
- The share of "heavy" crude oil imports (below 25 degrees American Petroleum Institute (API) gravity) increased relative to the share of "light" imports (above 37 degrees API gravity).
- The share of high-sulfur crude oil imports (2.5 percent or more sulfur content) increased relative to the share of low-sulfur imports (less than 0.5 percent sulfur content).
- The share of crude oil imports from Organization of Petroleum Exporting Countries (OPEC) producers declined from 82 percent to 44 percent of the U.S. total.
- East Coast imports of residual fuel oil (primarily from the Caribbean) decreased by more than 50 percent.
- Exports of refined petroleum products increased nearly threefold, to 575,000 barrels per day.

This article describes these and related changes in U.S. trade in crude oil and refined products. As explained in the article, the basis for this trade is differences among the costs of supplying petroleum from alternative sources. The general level of economic activity, the regulatory environment, interest rates, international supply conditions, etc., may all influence the relative costs of supply from domestic production, inventory drawdown, and imports.

## Crude Oil Imports Levels Reflect Domestic Demand

Domestic petroleum price controls, the periodic success of OPEC pricing strategies, and uncertainty concerning the reliability of foreign supplies have combined to make domestic crude oil the lowest cost source of oil to domestic refineries since the early 1970's. Between 1959 and 1973, however, the relative supply economics had favored imports, and the Federal Government's Mandatory Oil Import Program acted to protect domestic producers from the low-cost crude oils of the newly developed, prolific fields of the Middle East.

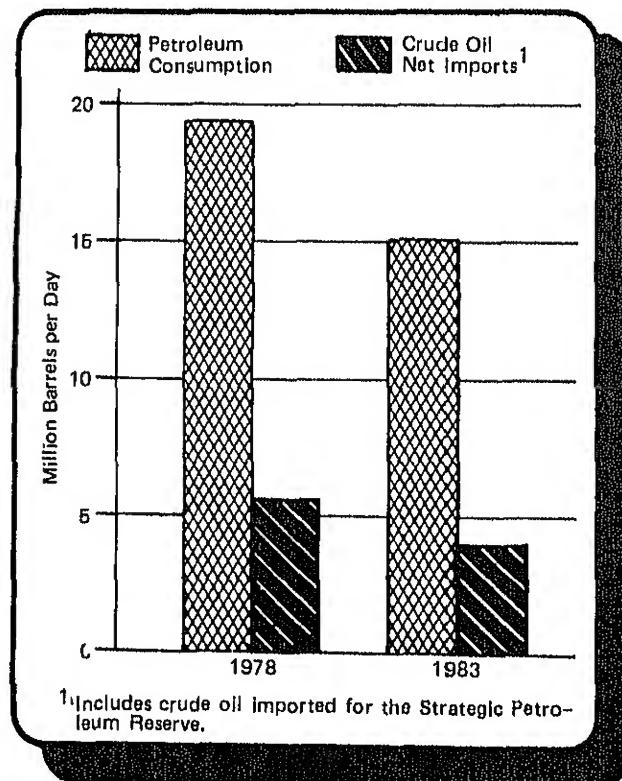
Now, as the higher cost product, imported crude oil generally represents the marginal source of oil supply to this country. And, as the marginal source, imported oil absorbs most of the variation in domestic petroleum demand.

In recent years, net U.S. crude oil imports dropped markedly in response to declining demand for petroleum products.<sup>1</sup> Consumption of petroleum, measured as petroleum products supplied, dropped steadily from its record 1978 level of 18.8 million barrels per day to an average of 15.2 million barrels per day during 1983 (see Figure 1). Stable domestic crude oil production and reduced refinery operations, with little drawdown of primary crude oil stocks, accompanied the decline.

Lower demand for crude oil and petroleum products resulted, in part, from reduced levels of economic activi-

<sup>1</sup>Gross crude oil imports, including purchases for the Strategic Petroleum Reserve, less crude oil exports.

Figure 1. Petroleum Consumption and Crude Oil Net Imports, 1978 and 1983



Source: Energy Information Administration, "Petroleum Supply Monthly," December 1983(3).

ity, fuel switching, and energy conservation investments by homes and businesses. It is likely that efforts by distributors and retailers to lower their own, secondary inventories also contributed to a lower effective demand for primary supply.

As a result, gross imports of crude oil declined from an average of 6.4 million barrels per day during 1978 to 3.3 million barrels per day during 1983. Foreign oil, which accounted for about 40 percent of U.S. refinery receipts in 1978, made up about 26 percent of receipts in 1983. Additional imports of crude oil for the Strategic Petroleum Reserve, however, average 0.2 million barrels per day during both 1978 and 1983.

### Shift Among Traditional Import Sources

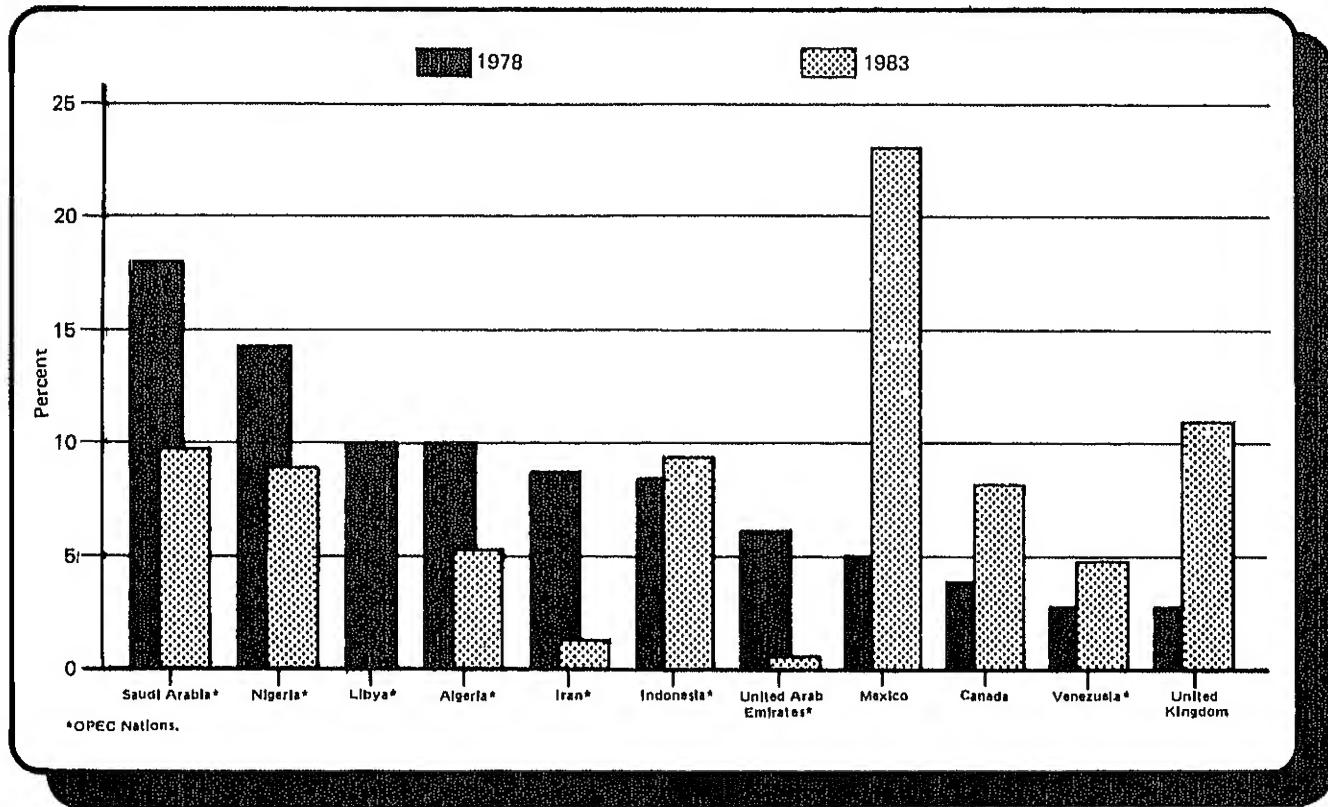
The world market price for crude oil reflects the marginal cost of the most expensive source of supply. But, when producers are governments, as opposed to profit-maximizing firms, these supply costs may account for political constraints in addition to the basic resource costs of locating, extracting, and delivering the oil. Supported by target production levels for individual OPEC members and the swing role of Saudi Arabia, the inflexibility of OPEC oil prices in the face of the increased worldwide competition and decreasing demand of the last 2 years has raised the cost of incremental OPEC oil purchases relative to that for other sources.

Thus, not only the total volume of U.S. crude oil imports but also the relative contribution of certain countries to that total may be expected to vary with changing U.S. petroleum demand.

Figure 2 traces the amplitudes in U.S. imports from major producing countries in response to changing demand levels since 1978—the peak year for U.S. petroleum consumption. What stands out in this figure is the variability in imports from OPEC sources in general and from Saudi Arabia in particular. The growing role of Mexican and United Kingdom (i.e., North Sea) oil imports is also clear.

Crude oil imports from OPEC countries into the United States declined substantially between 1978 and 1983, while those from non-OPEC producers increased. During 1978, OPEC members had supplied nearly 82 percent of U.S. crude oil imports. The three leading suppliers were Saudi Arabia, Nigeria, and Libya. By 1983, OPEC members were supplying less than one-half of gross U.S. crude oil imports, and Mexico had become the major foreign supplier. The United Kingdom ranked second as a source of U.S. crude oil imports in 1983, up from eleventh place in 1978. The percentages of crude oil imported from Indonesia and Venezuela—countries that have adopted a more competitive stance in the face of declining demand—increased slightly, while the percentages from Algeria, Iran, Libya, and Saudi Arabia declined. The United States imported no crude oil from Libya during 1983.

Figure 2. Imports of Crude Oil from Selected Countries, 1978 and 1983 (Percent of Total)

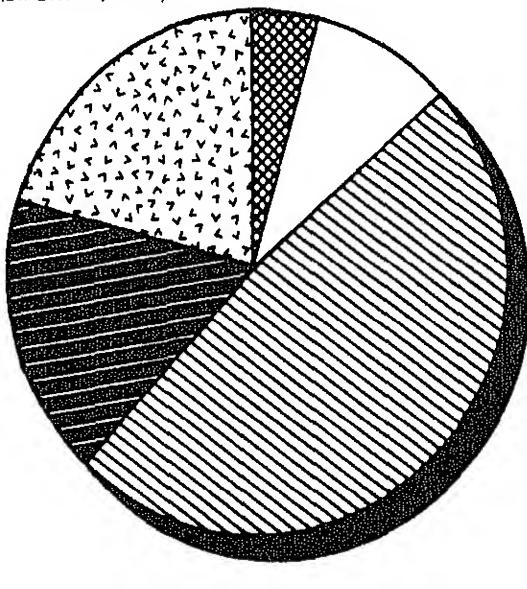


Source: Energy Information Administration, "Annual Petroleum Statement," 1978, and "Petroleum Supply Monthly," January through December 1983(3).

Figure 3. API Gravity of Imported Crude Oil, 1978 and 1983

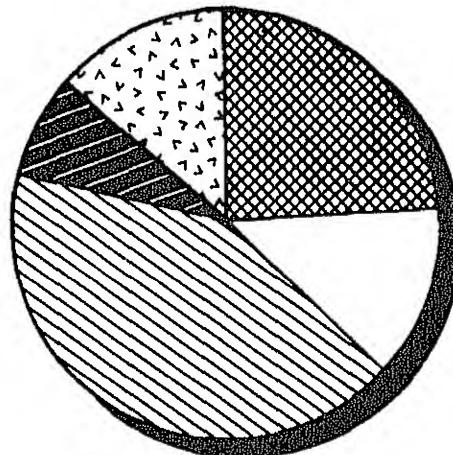
1978

6.4 Million Barrels per Day



1983

3.3 Million Barrels per Day



0 - 25.0° API Gravity  
 25.1° - 31.0° API Gravity

31.1° - 37.0° API Gravity

37.1° - 40.0° API Gravity  
 40.1° and over API Gravity

Source: Energy Information Administration, Form ERA-60, "Report of Oil Imports into the United States and Puerto Rico."

Changes in import levels and sources, however, should continue to be viewed in the context of the U.S. business cycle and the interaction among economic activity, demand for petroleum products, inventory strategies, and the price of oil.

Thus, in recent months, with the emerging recovery of the U.S. economy, imports from OPEC nations have again been increasing. By December 1983, imports of OPEC crude oil had reached 1.6 million barrels per day, almost double the first-quarter rate and nearly one-half of the U.S. crude oil imports. This latest increase reflected stepped-up imports from Algeria, Indonesia, Nigeria, and Saudi Arabia.

The recent increase in imports of Saudi Arabian crude oil has also been associated with the success of that country's sales in the spot market by its newly-formed Government trading company, Norbec, Ltd. Norbec markets Saudi Arabian crudes on a spot basis and at official prices to buyers in Japan, the United States, and Western European countries. This large-scale Saudi entry into the spot market represents a significant milestone in the development of the world oil market, widening the access of non-ARAMCO companies to Saudi production.<sup>2</sup>

#### Increased Marketing of Heavy and Sour Crude Oils

Changes in import volumes and sources are also represented in the mix of crude oil qualities available to the Nation's refineries.

Crude oils can be classified by several characteristics, such as viscosity, asphalt or paraffin base, mineral content, etc. The chemical composition of the crude oil input stream to a refinery both conditions the capital investment required to economically process that oil and constrains the mix of products that can be obtained. At the same time, the market demand for refined products and the complexity of the refinery also indicate the relative value of different crude oil types.

In the course of the 1981-82 economic recession, the general reduction in petroleum consumption was distributed unevenly across consuming sectors, with industrial demand affected more severely than either residential or transportation demand. The industrial sector also had responded more vigorously to the conservation and fuel-switching incentives of the 1979 and 1980 oil price increases. As a result, recent years have witnessed a basic demand shift toward the lighter petroleum products (such as gasoline) and away from the heavier ones (such as residual fuel oil). Increasing relative demands for unleaded gasoline and for transportation diesel fuel also mean refineries must produce higher quality streams of these lighter products.

Responding to a long-term outlook for declining crude oil quality and a continuation of the product demand

<sup>2</sup>Arabian American Oil Company is a partnership of Saudi Arabia with Exxon, SoCal, Texaco, and Mobil.

shift already underway, many U.S. refiners have increased their downstream processing capabilities, adding catalytic cracking, hydrocracking, and hydrotreating capacity. Refiners can now make a given mix of finished products from a wider range of crude oil types. This new flexibility has permitted them to reduce their dependence on higher-gravity and lower-sulfur feedstocks, which command a significant, although declining, price premium in the world market.

A principal source for many of the high-quality crude oils is the OPEC countries. Thus, the recent shift away from OPEC imports associated with the general decline in oil imports was facilitated by the enhanced ability of U.S. refiners to pick and choose among crude oil types.

#### Gravity

One important index of crude oil quality, indicating the mix of products that can be obtained, is weight per unit volume, or gravity. A system of degrees gravity developed by the API is the most commonly used measure of specific gravity. Often, the heavier crudes—those with low API gravity—will contain high levels of sulfur and other mineral impurities as well.

The average gravity of crude oils imported into the United States during 1983 was 31.0 degrees API, down from 33.7 degrees in 1978. As the total volume of crude oil imports declined over the period, the percentage of heavier (below 25 degrees API gravity) crude oils imported increased at the expense of the lighter (above 37 degrees API gravity), and higher-priced, crude oils (see Figure 3). These increases were mainly in the midcontinental States, where refiners had been especially active in adding downstream capacity that permitted them to process the heavier crudes. Seven out of every 10 barrels of crude oil imported during 1983 fell into the range of 0 to 37.0 degrees API (see Table 1), compared with 6 out of every 10 barrels during 1978.

#### Sulfur Content

Between 1978 and 1983, there was also a notable increase in the percentage of high-sulfur, or "sour," crude oils imported. As a result, the average sulfur content of crude oil imports rose during the period from 1.0 to 1.3 percent. High-sulfur crudes (2.5 percent or more sulfur) accounted for 25 percent of the imports in 1983, compared with only 5 percent in 1978. Imported crudes with less than 1.5 percent sulfur accounted for more than one-half of the 1983 volumes, down from over three-fourths during 1978 (see Figure 4).

The United States imported 0.8 million barrels per day of high-sulfur crude oil during 1983. Nearly all the high-sulfur crude oil imports were received by petroleum refiners east of the Continental Divide, and virtually all the relative growth in the imports of high-sulfur crude oil imports occurred there. Only small quantities of high-sulfur crude oils were imported for refining on the West Coast, which already processes large volumes of the heavy, sour California crude oils.

While there is already some reversal in the shift among import sources with the current recovery of U.S. petroleum demand, the restructuring of the domestic refining industry represents a more permanent change. So, without a significant reduction in price premiums placed on the lighter, less sour crude oils, a return to the average import qualities of recent years should not be expected.

#### Refined Products Account for Larger Share of Petroleum Imports

Domestic refinery output, based on the processing of both domestic and imported crude oils, has been increasingly supplemented by imports of refined products since 1981. Gross imports of petroleum products

**Table 1. Crude Oil Imports, 1983, by API Gravity and Sulfur Content (Thousand Barrels per Day)**

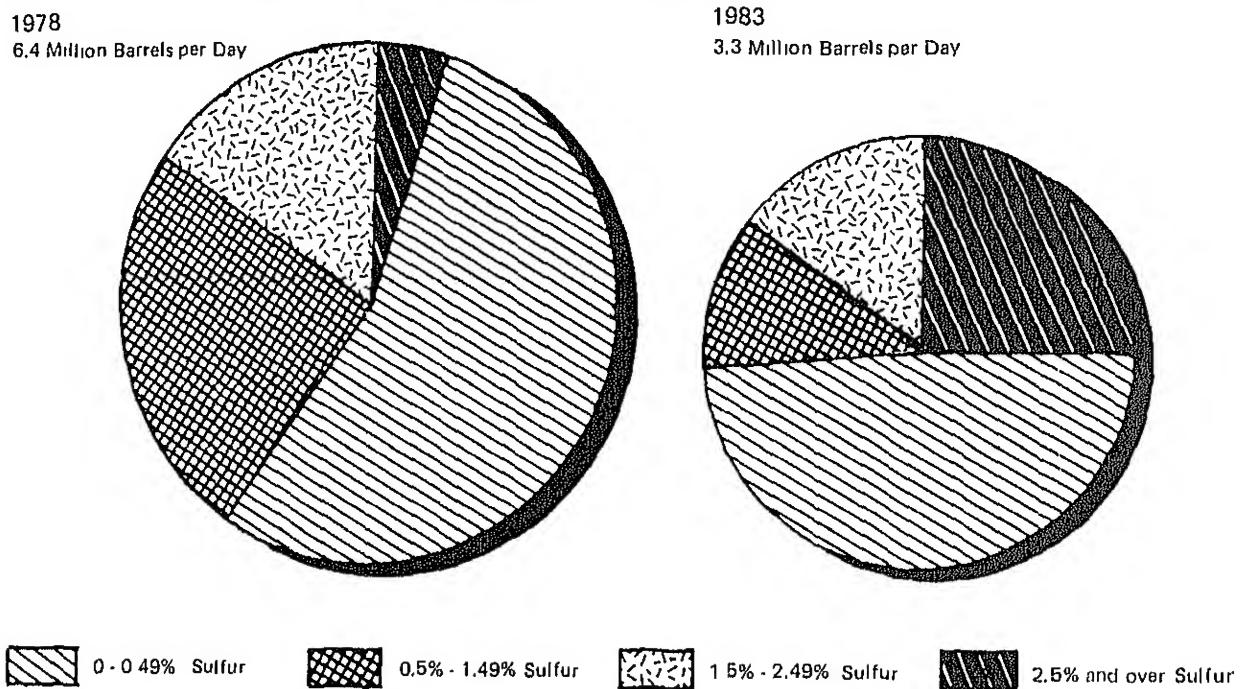
API Gravity	Percent Sulfur						Total
	0-0.49	0.5-0.99	1.0-1.49	1.5-1.99	2.0-2.49	2.5 and over	
API Gravity							
0.0-10.0	26.0	2.0	0	0	0	129.1	157.1
10.1-15.0	0.8	0	0	1.6	9.3	85.9	97.6
15.1-20.0	1.9	0	(s)	2.6	28.4	10.2	43.0
20.1-25.0	28.0	22.9	2.1	13.9	17.6	431.7	516.1
25.1-28.0	58.1	5.7	2.1	0.9	56.7	111.5	235.0
28.1-31.0	73.4	40.7	40.3	22.8	55.5	37.0	269.6
31.1-34.0	254.2	11.0	115.6	241.9	11.3	11.8	645.8
34.1-37.0	501.6	33.1	64.7	26.3	8.4	4.3	638.5
37.1-40.0	287.9	30.0	(s)	3.1	0	0	321.0
40.1-44.0	222.6	1.1	(s)	1.7	0	(s)	225.7
44.1-and over	150.4	1.5	1.4	0	0	0	153.3
<b>Total</b>	<b>1,604.7</b>	<b>148.0</b>	<b>226.5</b>	<b>314.7</b>	<b>187.2</b>	<b>821.4</b>	<b>3,302.6</b>

(s) Less than 500,000 barrels per day.

Totals may not equal sum of components due to independent rounding.

Source: Energy Information Administration Form ERA-60, "Report of Oil Imports Into the United States and Puerto Rico."

Figure 4. Sulfur Content of Imported Crude Oil, 1978 and 1983



Source: Energy Information Administration, Form ERA-60, "Report of Oil Imports into the United States and Puerto Rico."

accounted for 11.1 percent of total domestic product supplied in 1983, up from a 10-year low of 9.7 percent in 1980. The annual rate of total product supplied had dropped by almost 1.9 million barrels per day over this period, but gross imports were relatively successful in maintaining their share of a declining U.S. market.

Although the goal here is to describe developments in the overall U.S. foreign trade in petroleum, it is worth noting that the recent upward trend for gross product imports has not been paralleled by that for net imports. As a result of increasing product exports, discussed below, the ratio of net imports of petroleum products to total products supplied declined from 8.1 percent in 1980 to 7.3 percent in 1983.

Basically, product imports may be expected to increase whenever foreign production costs are lower than domestic costs. Low-cost, seasonal operation of relatively uncomplicated, heavy-fuel refineries in the Caribbean has been a particularly important source of winter supply for residual fuel oils to East Coast U.S. markets. (See Box on Caribbean refining industry.) In 1983, 57 percent of U.S. refined product imports came from the Caribbean Basin, 6 percent from Europe, 16 percent from Canada, and 10 percent from Africa and Asia.<sup>3</sup>

Residual fuel oil and liquefied petroleum gases (LPG) are two of the most heavily imported petroleum products. Almost 690,000 barrels per day of residual fuel oil and 190,000 barrels per day of LPG's were imported in 1983 (see Table 2). Also in 1983, imports of distillate fuel oils averaged 168,900 barrels per day, after falling to 93,300 barrels per day in 1982; and imports of motor

Table 2. Petroleum Product Imports, 1978 and 1983  
(Thousands Barrels per Day)

Commodity	1978	1983
Liquefied Petroleum Gases	122.8	190.3
Finished Motor Gasoline	190.4	249.0
Distillate Fuel Oil	173.4	168.9
Residual Fuel Oil	1,355.2	689.3
Unfinished Oils	27.2	233.3
Others	138.7	155.1
<b>Total All Products</b>	<b>2,007.7</b>	<b>1,685.9</b>

Source: Energy Information Administration, "Annual Petroleum Statement," 1978, and "Petroleum Supply Monthly," 1983.

gasoline were nearly one third higher than those 5 years earlier.

#### Residual Fuel Oil Imports Grow with Changes in U.S. Refining Industry

Residual fuel oil markets have been very weak in recent years. Reduced industrial residual fuel oil demand has been attributed to the severe 1981-82 recession, as well as to conservation and fuel switching in the wake of the sharp petroleum price increases of 1979 and 1980. Thus, although meeting a larger part of the U.S. residual fuel oil requirements, 1983 residual fuel oil imports were still about half their 1978 level.

<sup>3</sup>Caribbean Basin petroleum exporters include Puerto Rico, the U.S. Virgin Islands, the Bahamas, Mexico, the Netherlands Antilles, Trinidad and Tobago, and Venezuela.

# Caribbean Refining Industry

Caribbean crude oil refineries supply more than half the U.S. demand for imported petroleum products. In 1983 five Caribbean nations, Puerto Rico, and the U.S. Virgin Islands supplied almost 57 percent of U.S. product imports. Three of the five Caribbean refining nations—Mexico, Trinidad and Tobago, and Venezuela—are oil producers. The other two nations—the Bahamas and the Netherlands Antilles—refine only imported crude oil.

The principal U.S. petroleum product import from the Caribbean is residual fuel oil—accounting for 47 percent of the total shipments received from this region in 1983. By contrast, the second biggest import, unfinished oils, contributed only 19 percent to the total.

The emphasis on residual fuel oil production characterizes refineries in both the U.S. Caribbean (Puerto Rico and the Virgin Islands) and the non-U.S. Caribbean. As a percentage of their total shipments, however, the non-U.S. Caribbean sells more than twice as much residual fuel oil as the U.S. Caribbean. Puerto Rico and U.S. Virgin Islands are this Nation's main Caribbean source of finished motor gasoline and distillate fuel oil imports.

## Markets

Refineries in the U.S. Caribbean are primarily engaged in production for export. Except for certain products, like kerosene, the U.S. Caribbean generally exports more petroleum products than are consumed on the islands.

Within the non-U.S. Caribbean group, refineries in the Bahamas, Trinidad and Tobago, and the Netherlands Antilles are even more export oriented than the U.S. region. Mexican and Venezuelan refineries, however, operate to meet both export and domestic requirements. When the refining activity of these two large countries is included, more than 60 percent of distillate fuel oil, kerosene, liquid petroleum gas, and motor gasoline production in the non-U.S. Caribbean is consumed by domestic markets.

## Refinery Complexity

Caribbean refineries are generally less complex than those in the United States, with some significant exceptions. The relationship between total downstream capacity and

crude oil distillation capacity provides a general indication of refinery complexity (see Table below). On this basis, the structure of U.S. Caribbean refineries is comparable with that for the rest of the country. Mexican and Venezuelan refineries are less complex, while still maintaining significant capacity to produce the lighter fuels for domestic use. The smaller, non-U.S. island refineries represent relatively uncomplex operations. (The Bahamas has virtually no downstream process capability.) Accounting for the very heavy, Venezuelan crude oils commonly processed by many of the non-U.S. Caribbean refineries, the ability of these operations to produce lighter fuels is even more limited than directly indicated by the available downstream capacity.

## Refinery Operations

Average refinery capacity utilization (measured as crude oil runs divided by crude oil distillation capacity) in the U.S. Caribbean in 1982 was 65 percent, slightly below that of the mainland United States, at 70 percent. Average 1983 utilization in the U.S. Caribbean was 62 percent. Activity at all these U.S. refineries had declined since 1979, although average utilization through the mid-1970's had been consistently above 80 percent. With the pickup in the U.S. economy in 1983, however, refinery utilization is now increasing.

Venezuelan refineries were operated at 67 percent utilization in 1982—a relatively high level considering the low demand for residual fuel oil in that year. More striking is the 94 percent utilization of Mexican refineries in 1982. Considering the high energy and maintenance costs of operating refineries at this level, this intense production underscores (1) the effect of government price controls and (2) the importance attached by the Mexican government to bringing in foreign currency in this period.

The export refineries of the Bahamas, the Netherlands Antilles, and Trinidad and Tobago were being utilized at significantly less than the U.S. rate in 1982—at 37, 49, and 40 percent, respectively. The low annual average rate reflects the highly seasonal nature of the demand for their principal product, residual fuel oil, but contrasts sharply with the very high utilization rates for this region in the early 1970's when the U.S. Mandatory Oil Import Program was still in effect.

## Operable Capacity of Petroleum Refineries, January 1, 1983 (Thousand Barrels per Stream Day)

	U.S.	Non-U.S. Caribbean			Total
		Mexico and Venezuela	Other Caribbean		
Crude Distillation	17,871	818	2,838	1,841	4,679
Vacuum Distillation	7,180	321	1,296	563	1,869
Thermal Operations	1,715	60	168	267	435
Catalytic Cracking	5,890	56	629	74	603
Catalytic Reforming	3,918	269	190	17	207
Catalytic Hydrocracking	883	15	20	0	20
Catalytic Hydrotreating	8,354	582	870	383	1,263
Total Downstream	27,940	1,303	3,073	1,304	4,377
Complexity Index (%)*)	156	156	108	71	94

\* Total downstream capacity divided by crude oil distillation capacity times 100.

The magnitude of the decline in residual fuel oil imports also reflects the high base from which this decline started. Exemption of East Coast residual fuel oil imports from the restrictions of the Mandatory Oil Import Program in the early 1970's and, after 1976, the granting of partial entitlements to East Coast residual fuel oil importers provided significant incentives to Caribbean producers. Termination of the Entitlements Program with the decontrol of crude oil prices in January 1981 ended this effective subsidy.

At the same time that product imports were being encouraged, the Small Refiner Bias of the Entitlements Program was subsidizing domestic investment in small-scale refinery operations that produced relatively high yields of residual fuel oil. Without this program, and the resulting increased domestic production, imports would likely have been greater yet.

Now, residual fuel oil imports are competing in what is the closest they have been to a free market in more than 15 years. On net, the shutdown of small, inefficient domestic refineries supported by the Entitlements Program has probably improved the relative economics of product imports.

Since 1972, most U.S. residual fuel oil imports have come from the Caribbean region. In 1972, about 83 percent of U.S. imports came from the Caribbean Basin, including Mexico and Venezuela. However, by 1983 this share had decreased to 66 percent, with an increasing share (9 percent) of a reduced market coming from African nations. Most residual fuel oil imports—87 percent in 1983—continue to be received by East Coast States. New York, New Jersey, and Massachusetts are the largest importers, with peak-season surges in residual fuel oil imports for electricity generation.

The current economic recovery along with a near-term outlook for continued increases in relative natural gas prices should act to stimulate residual fuel oil demand—which, in turn, should result in higher residual fuel oil imports. However, even while average import levels may increase, a return to the sharp seasonal swings in imports of the early 1970's should not be expected as long as the current availability of extra refining capacity in this country persists.

### **Liquefied Petroleum Gas Trade and World Natural Gas Markets**

LPG's—including propane, butane, ethane, and petrochemical feedstocks such as propylene and butylene—are produced at both refineries and natural gas processing plants. Imports of LPG's have risen gradually since 1972, primarily reflecting a relative cost advantage enjoyed by foreign producers of natural gas. About 85 percent of U.S. LPG imports in 1972 came from Canada, and most of the balance came from Venezuela. By 1983 the Venezuelan share had been largely supplanted by supplies from Mexico and Saudi Arabia.

About 70 percent of 1983 LPG imports came into Midwestern States, and most growth in U.S. imports since 1972 has been in this region. Gulf Coast imports of LPG nearly doubled in this period, but that region's share of total imports remains small.

### **Export Regulations**

The issue of Federal controls on petroleum exports was highlighted in 1983 with the debate on whether to allow exports of North Alaskan crude oil. Exports of crude oil and major refined products are regulated by an array of Federal laws.

The Export Administration Acts (EAA) of 1969 and 1979 have authorized the President to restrict exports when it is determined that those exports would be to the national detriment. The EAA provided the legal framework for the initial December 1973 imposition of quotas on gasoline, kerosene, distillates, aviation fuels, residual fuel oils, and most naphthas. Export licenses, but not quotas, were required for residual products such as coke and carbon black. However, exports of petrochemical feedstocks, waxes, and lubricating oils were not controlled.

Export quotas and licensing are managed by the Department of Commerce and enforced through the adoption of "Short Supply Control" regulations authorized by the EAA. Although the legislative basis for product quotas is still in place and export licenses are required, in 1981 the Department of Commerce removed all remaining quantity restrictions on refined product exports.

Predating the EAA, the Mineral Lands Leasing Act (MLLA) of 1920 and the Outer Continental Shelf Lands Act of 1953 both require a Presidential finding that any export of crude oil would not diminish the quantity or quality of oil available to the United States or increase imports. The Trans-Alaska Pipeline (TAP) Authorization Act of 1973 extends the provisions of the MLLA to Alaskan production transported via the TAP system. Finally, the Energy Policy and Conservation Act of 1975 required the President to promulgate export control regulations. The MLLA and the Naval Petroleum Reserve Act of 1976, however, enable the Federal Government to exempt from these restrictions oil from Federal lands that is exchanged with oil from adjacent foreign states.

Many of these Federal laws contain provisions that allow one-house Congressional vetoes of any Presidential finding that exports would be in the national interest. However, such provisions were recently declared unconstitutional by the Supreme Court decision in the case of *Immigration and Naturalization Service vs. Chadha*. Thus, some legislative remedy in this area may be anticipated in the next year. Although extension of the EAA is being discussed in Congress, no changes in that bill concerning petroleum exports are likely to be enacted this year.

Gross LPG imports, which accounted for only 6 percent of the total U.S. consumption of these products in 1972, were used to meet almost 13 percent of U.S. domestic requirements in 1983. Net imports followed the same doubling pattern—rising from 4 percent of consumption in 1972 to 8 percent in 1983. The increasing role of LPG imports has been especially stimulated by increases in U.S. natural gas prices permitted under the provisions of the 1978 Natural Gas Policy Act. At the same time, the relative cost advantage maintained by domestic producers of petrochemicals in the early

1970's has deteriorated. New natural gas-processing plants currently under construction in Saudi Arabia, Mexico, Canada, and other countries support an outlook for increased importation of low-cost LPG's and petrochemicals.

### The Surge In Petroleum Product Exports

In the last 2 years, exports of refined petroleum products have represented an increasingly important claim on domestic resources. Following the December 1973 Arab oil embargo, quotas were established on the U.S. export of most petroleum products. (See box reviewing Federal export regulations.) Product exports, consisting primarily of residual fuel oil and petroleum coke, had averaged about 200,000 barrels per day before the embargo and remained at that level until 1981. By 1983, product exports had increased to 575,100 barrels per day, accounting for 3.8 percent beyond the total petroleum products supplied to domestic markets in that year.

The increase in exports came about in two steps. First, with the change in Administrations and the final decontrol of crude oil prices in January 1981, there was an immediate increase in product exports of more than 100,000 barrels per day. This initial surge appears to be related more to the psychological impact of decontrol than to any specific market or regulatory gain to exporters from the decontrol. Additional increases followed the October 1981 removal of all remaining quantity restrictions on product exports by the Department of Commerce. Total product exports averaged 366,700 barrels per day in 1981, 578,700 barrels per day in 1982, and 575,100 barrels per day in 1983.

This increase is attributable to residual fuel oil, petroleum coke, distillate fuel oil, and LPG's (see Table 3). Exports are coming almost exclusively from West Coast

and Gulf Coast refineries, with residual fuel oil and coke supplied increasingly as uneconomic by-products of new downstream refining processes. This cheap, low-heat-content coke has been able to compete successfully abroad with coal in the generation of process heat (e.g., in the production of cement).

**Table 3. Petroleum Product Exports, 1978 and 1983  
(Thousand Barrels per Day)**

Commodity	1978	1983
Liquefied Petroleum Gases	19.8	73.4
Distillate Fuel Oil	3.3	64.1
Residual Fuel Oil	12.7	184.9
Petroleum Coke	110.8	194.8
Others	57.0	57.9
<b>Total All Products</b>	<b>203.6</b>	<b>575.1</b>

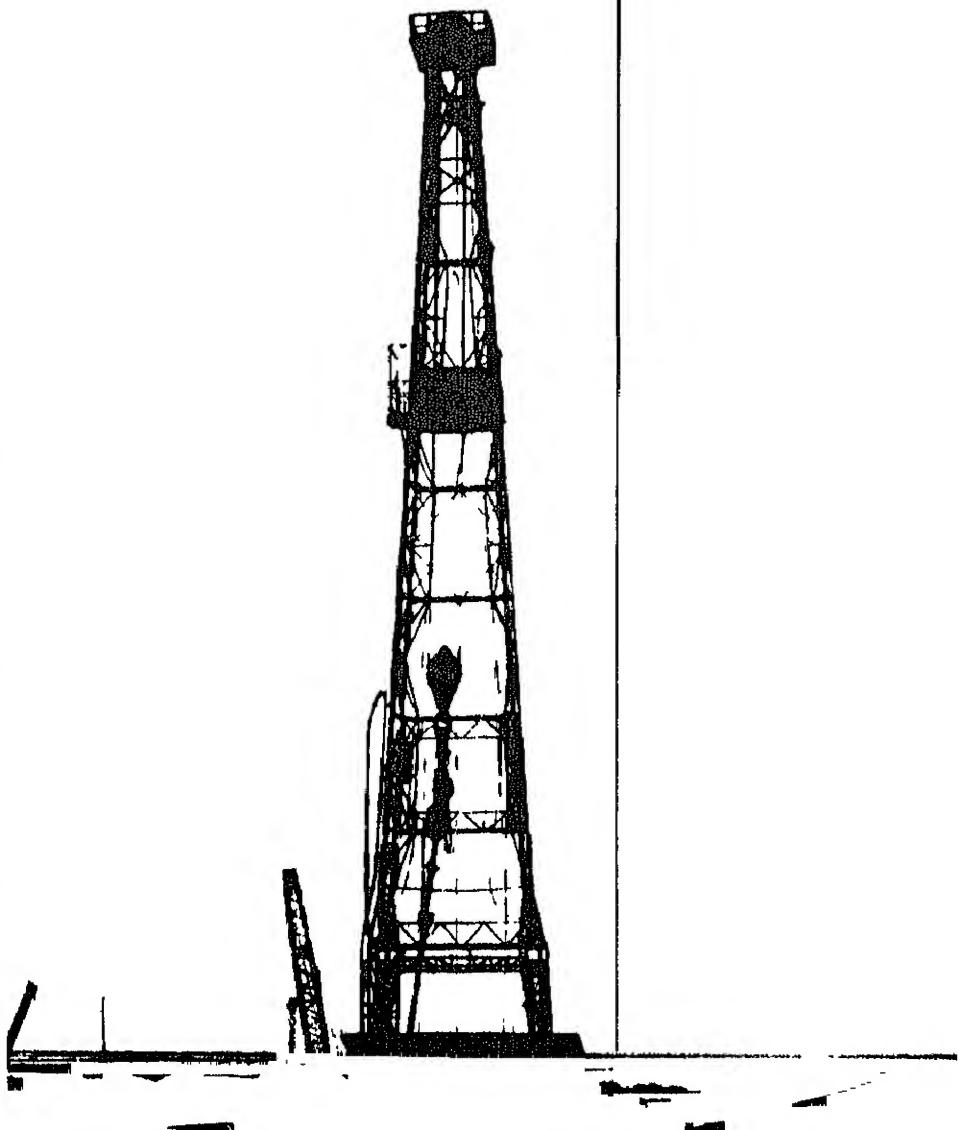
Source: Energy Information Administration, "Annual Petroleum Statement," 1978, and "Petroleum Supply Monthly," 1983.

It is likely that the overall growth in product exports will slow with a continuation of the current economic recovery, as domestic industrial demand for residual fuel oil and coke increases. However, further refinery investments to upgrade the quality of products refined from increasingly heavy crude oils will lower the costs of these less profitable by-products, permanently enhancing their competitive position in international markets.

Meanwhile, exports of crude oil continue to be restricted by Federal law. Certain exchanges, however, are permitted, and approximately 18,600 barrels per day were exchanged with Canada on a barrel-for-barrel basis during 1983. Another 146,000 barrels per day were shipped to U.S. Territories (namely, Puerto Rico and the Virgin Islands) for refining before subsequent consumption or re-export as finished product.



# **Summary Statistics**



## Crude Oil<sup>1</sup> and Petroleum Products Overview

	Field Production			Stock Withdrawal <sup>2</sup>		Petroleum Products Supplied	Crude Oil <sup>5</sup> and Petroleum Products	Ending Stocks <sup>3</sup>
	Total Domestic <sup>4</sup>	Crude Oil	Natural Gas Plant Production	Crude Oil <sup>5</sup>	Petroleum Products			
	Thousand Barrels per Day					Million Barrels		
1973	AVERAGE	10,975	9,208	1,738	11	-148	17,308	1,008
1974	AVERAGE	10,498	8,774	1,688	-62	-117	16,653	<sup>8</sup> 1,074
1975	AVERAGE	10,045	8,375	1,633	<sup>8</sup> -17	<sup>8</sup> -145	16,322	1,133
1976	AVERAGE	9,774	8,132	1,603	-39	96	17,461	1,112
1977	AVERAGE	9,913	8,245	1,618	-170	-378	18,431	1,312
1978	AVERAGE	10,328	8,707	1,567	-78	172	18,847	1,278
1979	AVERAGE	10,179	8,552	1,584	-148	-25	18,513	1,341
1980	AVERAGE	10,214	8,597	1,573	-98	-42	17,056	<sup>8</sup> 1,392
1981	AVERAGE	10,230	8,572	1,609	<sup>8</sup> -290	<sup>8</sup> 130	16,058	1,484
1982	January	10,128	8,509	1,578	-401	1,298	16,124	1,456
	February	10,312	8,702	1,563	-242	1,230	16,001	1,428
	March	10,284	8,667	1,572	121	1,047	15,560	1,392
	April	10,188	8,591	1,542	-37	1,583	16,046	1,346
	May	10,244	8,683	1,518	29	-66	14,847	1,347
	June	10,212	8,646	1,511	40	-489	14,998	1,360
	July	10,229	8,658	1,513	-147	-926	14,821	1,393
	August	10,215	8,634	1,524	-440	-44	14,839	1,408
	September	10,279	8,701	1,518	263	-447	15,022	1,414
	October	10,299	8,701	1,530	-548	-47	14,859	1,432
	November	10,359	8,697	1,609	-398	-361	15,009	1,455
	December	10,276	8,598	1,628	128	688	15,487	<sup>8</sup> 1,430
	AVERAGE	10,252	8,649	1,550	-136	283	15,296	
1983	January	10,356	8,634	1,668	-567	<sup>8</sup> 865	14,765	1,453
	February	10,298	8,660	1,585	-382	1,128	14,772	1,432
	March	10,259	8,677	1,544	56	1,765	15,484	1,375
	April	10,229	8,686	1,502	-438	431	14,779	1,376
	May	10,231	8,682	1,483	68	-759	14,250	1,397
	June	10,262	8,676	1,514	-163	-242	15,281	1,409
	July	10,237	8,647	1,536	118	-922	14,913	1,434
	August	10,257	8,653	1,561	-781	-289	15,366	1,487
	September	10,323	8,666	1,588	-191	-634	15,396	1,492
	October	10,317	8,654	1,604	-180	-456	14,947	1,512
	November	10,310	8,624	1,636	182	-128	15,533	1,510
	December	10,188	8,612	1,539	-306	2,150	16,691	1,453
	AVERAGE	10,272	8,656	1,564	-215	239	15,184	
1984	January	10,282	8,659	1,585	-342	1,085	16,726	1,430
	February*	10,410	8,726	1,629	R 186	R -1,353	R 15,389	R 1,464
	March**	NA	8,718	NA	85	218	15,549	1,433
	AVERAGE	NA	8,700	NA	-28	13	15,899	

<sup>1</sup> Includes lease condensate.

<sup>2</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>3</sup> Stocks are totals as of end of period.

<sup>4</sup> Includes crude oil, natural gas plant production, other hydrocarbons, and alcohol.

<sup>5</sup> Includes stocks located in the Strategic Petroleum Reserve.

\* Includes storage in the Strategic Petroleum Reserve.

\*\* Includes Exports.

NA is respondents were added to surveys affecting stocks

\*\* See Explanatory Note 10.

Crude Oil<sup>1</sup> and Petroleum Products Overview (continued)

	Imports			Exports			Net <sup>7</sup> Imports	
	Total	Crude Oil <sup>6</sup>	Petroleum Products	Total	Crude Oil	Petroleum Products		
	Thousand Barrels per Day							
1973	AVERAGE	6,256	3,244	3,012	231	2	229	6,025
1974	AVERAGE	6,112	3,477	2,635	221	3	218	5,892
1975	AVERAGE	6,056	4,105	1,951	209	6	204	5,848
1976	AVERAGE	7,313	5,287	2,026	223	8	215	7,090
1977	AVERAGE	8,807	6,615	2,193	243	50	193	8,565
1978	AVERAGE	8,363	6,356	2,008	382	158	204	8,002
1979	AVERAGE	8,456	6,519	1,937	472	235	237	7,984
1980	AVERAGE	6,909	5,263	1,646	544	287	258	6,365
1981	AVERAGE	5,996	4,396	1,599	595	228	367	5,401
1982	January	5,332	3,693	1,639	829	238	591	4,503
	February	4,807	2,990	1,817	804	304	499	4,003
	March	4,484	2,874	1,610	882	321	561	3,602
	April	4,378	2,849	1,529	786	174	611	3,593
	May	4,811	3,309	1,503	803	262	542	4,008
	June	5,327	3,836	1,491	703	94	609	4,624
	July	5,890	4,248	1,642	741	229	512	5,149
	August	5,244	3,851	1,392	858	304	554	4,386
	September	5,414	3,636	1,778	791	184	606	4,624
	October	5,306	3,670	1,636	932	270	662	4,374
	November	5,744	3,862	1,882	786	262	524	4,958
	December	4,606	3,000	1,605	860	193	667	3,746
	AVERAGE	5,113	3,488	1,625	815	236	579	4,298
1983	January	4,372	2,938	1,434	973	117	856	3,399
	February	3,691	2,268	1,423	865	262	603	2,825
	March	3,629	2,232	1,398	801	174	627	2,829
	April	4,744	3,154	1,590	809	88	721	3,935
	May	4,898	3,234	1,664	848	280	568	4,049
	June	5,218	3,502	1,716	774	144	630	4,443
	July	5,690	3,868	1,822	571	145	426	5,119
	August	6,036	4,174	1,863	663	172	491	5,373
	Sepptember	6,088	4,221	1,867	684	177	507	5,403
	October	5,256	3,446	1,810	576	140	436	4,680
	November	5,168	3,312	1,856	679	186	494	4,489
	December	4,986	3,214	1,772	639	95	544	4,348
	AVERAGE	4,988	3,303	1,686	739	164	575	4,249
1984	January	5,347	3,029	2,318	575	153	422	4,772
	February*	R 5,643	R 2,952	R 2,691	582	185	397	5,061
	March**	5,145	3,576	1,570	NA	NA	NA	NA
	AVERAGE	5,373	3,191	2,182	NA	NA	NA	NA

Footnotes continued.

\* See Explanatory Note 9.1.

\*\* Italics denote estimates based upon preliminary data. See Explanatory Note 8.

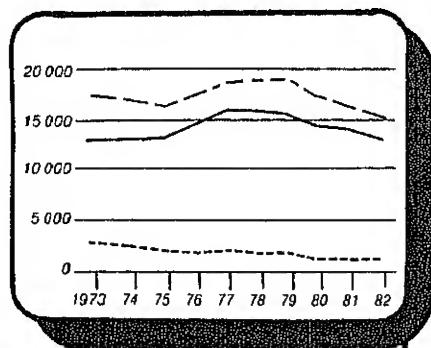
R = Revised data. NA = Not available.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

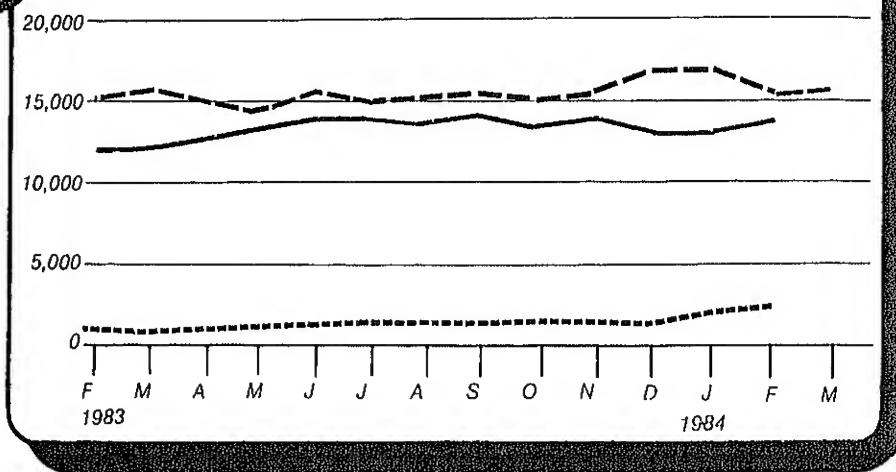
## Petroleum Overview

(Thousand Barrels Per Day)



Annual

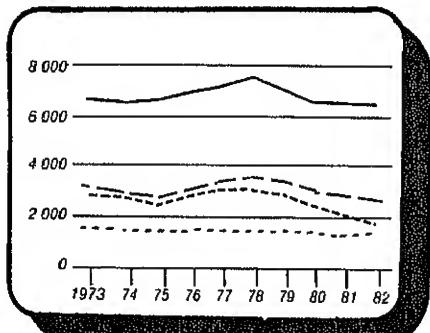
Legend  
— Petroleum Product Supplied  
— Refinery Production  
- - - Net Petroleum Product Imports



Monthly

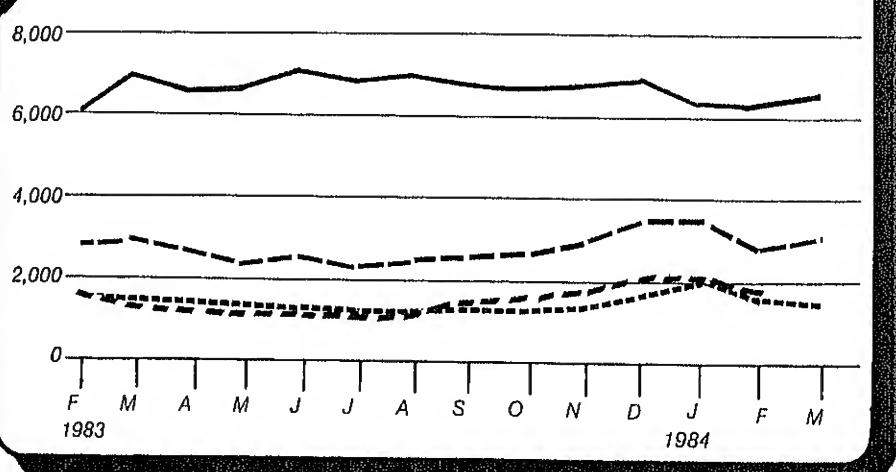
## Petroleum Products Supplied

(Thousand Barrels Per Day)



Annual

Legend  
— Motor Gasoline  
- - - Distillate Fuel Oil  
- - - Residual Fuel Oil  
- - - LPG<sup>1</sup>

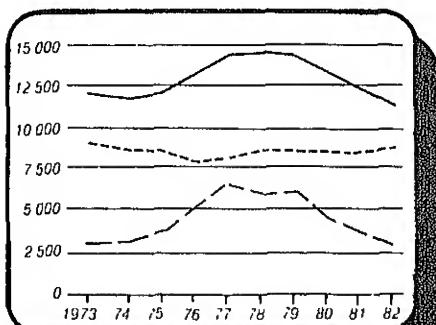


<sup>1</sup> Liquefied Petroleum Gases

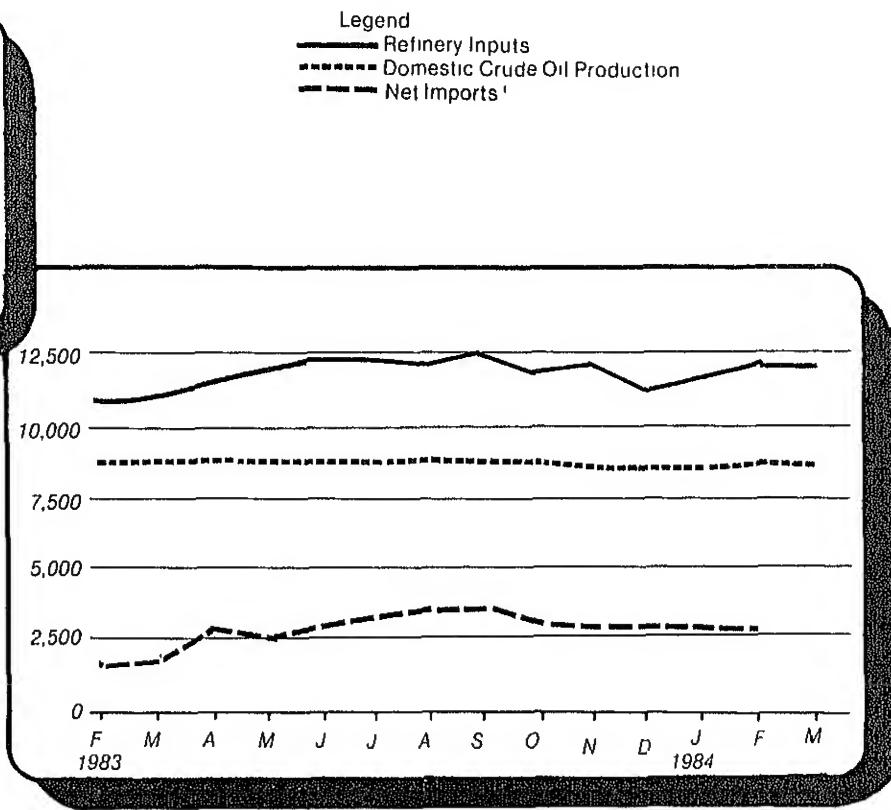
Monthly

## Crude Oil Supply and Disposition

(Thousand Barrels Per Day)

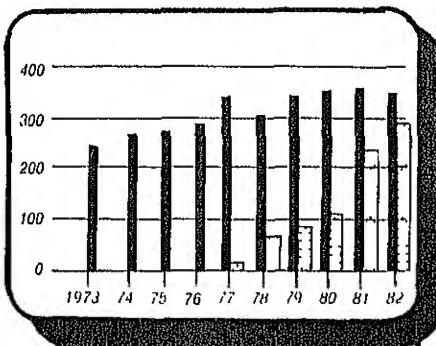


<sup>1</sup> Excludes SPR Imports

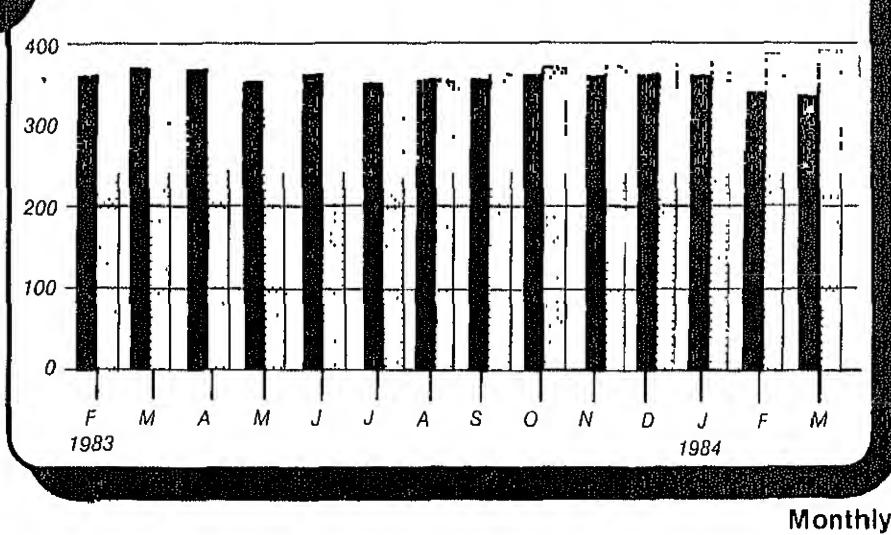


## Crude Oil Ending Stocks

(Million Barrels)



<sup>1</sup>Level and width of Average Stock Range for other primary crude oil is based on 3 years of data, July 80-July 83. See Explanatory Note 6



## Crude Oil<sup>1</sup> Supply and Disposition

	Supply							
	Field Production		Imports			Stock Withdrawal <sup>3</sup>		Unac- counted for Crude Oil
	Total Domestic	Alaskan	Total	SPR <sup>4</sup>	Other	SPR <sup>4</sup>	Other	
Thousand Barrels per Day								
1973	AVERAGE	9,208	198	3,244	3,244		11	3
1974	AVERAGE	8,774	193	3,477	3,477		-62	-25
1975	AVERAGE	8,375	191	4,105	4,105		-17	17
1976	AVERAGE	8,132	173	5,287	5,287		-39	77
1977	AVERAGE	8,245	464	6,615	21	6,594	-20	-150
1978	AVERAGE	8,707	1,229	6,356	162	6,195	-163	84
1979	AVERAGE	8,552	1,401	6,519	67	6,452	-67	-81
1980	AVERAGE	8,597	1,617	5,263	44	5,219	-45	-52
1981	AVERAGE	8,572	1,609	4,396	256	4,141	-336	6 46
1982	January	8,509	1,705	3,693	170	3,523	-159	-242
	February	8,702	1,707	2,990	159	2,830	-213	-29
	March	8,667	1,696	2,874	185	2,689	-235	357
	April	8,591	1,691	2,849	190	2,659	-233	196
	May	8,683	1,707	3,309	204	3,105	-176	205
	June	8,646	1,665	3,836	105	3,732	-105	144
	July	8,658	1,710	4,248	97	4,150	-97	-50
	August	8,634	1,697	3,851	208	3,643	-208	-232
	September	8,701	1,705	3,836	139	3,497	-143	406
	October	8,701	1,706	3,670	216	3,454	-216	-332
	November	8,697	1,676	3,862	180	3,683	-179	-219
	December	8,598	1,682	3,000	124	2,877	-125	252
	AVERAGE	8,649	1,696	3,488	165	3,323	-174	38
1983	January	8,634	1,698	2,938	219	2,720	-219	-348
	February	8,660	1,725	2,268	197	2,071	-197	-185
	March	8,677	1,726	2,232	201	2,031	-184	240
	April	8,686	1,710	3,154	205	2,949	-197	-241
	May	8,682	1,710	3,234	289	2,945	-293	362
	June	8,676	1,710	3,502	190	3,312	-188	25
	July	8,647	1,705	3,868	274	3,594	-264	382
	August	8,653	1,712	4,174	350	3,823	-358	-423
	September	8,666	1,722	4,221	309	3,912	-307	116
	October	8,654	1,731	3,446	202	3,244	-201	21
	November	8,624	1,713	3,312	171	3,141	-135	317
	December	8,612	1,713	3,214	193	3,021	-252	-55
	AVERAGE	8,656	1,715	3,303	234	3,069	-234	19
1984	January	8,659	1,741	3,029	200	2,829	-173	-169
	February*	8,726	1,740	R 2,952	R 85	R 2,868	R -96	R 282
	March**	8,718	1,740	3,576	172	3,404	-149	234
	AVERAGE	8,700	1,740	3,191	154	3,037	-140	112
NA								

<sup>1</sup> Includes lease condensate.

<sup>2</sup> Stocks are totals as of end of period.

<sup>3</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>4</sup> Strategic Petroleum Reserve.

<sup>5</sup> Beginning in January 1983, crude oil used directly as fuel is shown as product supplied.

<sup>6</sup> Stocks of Alaskan crude oil in transit were included beginning in January 1981. Stock withdrawals are calculated using new basis stock levels. See Explanatory Note 11.

Footnotes continued on following page.

## Crude Oil<sup>1</sup> Supply and Disposition (continued)

	Supply	Disposition				Ending Stocks <sup>2</sup>		
		Crude Used Directly <sup>5</sup>	Crude Losses	Refinery Inputs	Exports	Products Supplied <sup>5</sup>	Total Crude Oil	SPR <sup>4</sup>
	Thousand Barrels per Day					Million Barrels		
1973	AVERAGE	-19	13	12,431	2	NA	242	242
1974	AVERAGE	-15	13	12,133	3	NA	265	265
1975	AVERAGE	-17	13	12,442	6	NA	271	271
1976	AVERAGE	-18	15	13,416	8	NA	285	285
1977	AVERAGE	-14	16	14,602	50	NA	348	7
1978	AVERAGE	-14	16	14,739	168	NA	376	67
1979	AVERAGE	-13	16	14,648	235	NA	430	91
1980	AVERAGE	-13	15	13,481	287	NA	<sup>6</sup> 466	108
1981	AVERAGE	-58	5	12,470	228	NA	594	230
1982	January	-63	3	11,599	238	NA	606	235
	February	-64	2	11,236	304	NA	613	241
	March	-63	5	11,276	321	NA	609	249
	April	-65	3	11,392	174	NA	610	256
	May	-62	3	11,806	262	NA	609	261
	June	-60	7	12,494	94	NA	608	264
	July	-60	3	12,446	229	NA	613	267
	August	-57	2	11,871	304	NA	626	274
	September	-56	4	12,146	184	NA	619	278
	October	-51	2	11,749	270	NA	636	285
	November	-51	1	11,724	262	NA	648	290
	December	-53	1	11,514	193	NA	644	294
	AVERAGE	-59	3	11,774	236	NA		
1983	January	NA	2	11,070	117	54	661	301
	February	NA	3	10,635	262	69	672	306
	March	NA	2	10,854	174	70	670	312
	April	NA	2	11,436	88	68	684	318
	May	NA	1	11,789	280	63	681	327
	June	NA	1	12,287	144	64	688	332
	July	NA	2	12,347	145	65	683	341
	August	NA	1	12,141	172	64	707	352
	September	NA	1	12,445	177	66	713	361
	October	NA	1	11,784	140	63	718	367
	November	NA	2	12,003	186	64	713	371
	December	NA	1	11,217	95	67	722	379
	AVERAGE	NA	1	11,672	164	65		
1984	January	NA	1	11,579	153	64	733	384
	February*	NA	1	R 12,100	185	65	727	387
	March**	NA	NA	12,006	NA	NA	724	392
	AVERAGE	NA	NA	11,891	NA	NA		392

Footnotes continued.

\* See Explanatory Note 9.2.

\*\* Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

Crude Oil and Petroleum Product Imports

	Imports from OPEC Sources <sup>1</sup>										
	Algeria	Libya	Saudi Arabia	United Arab Emirates	Indonesia	Iran	Nigeria	Venezuela	Other OPEC <sup>2</sup>	Total OPEC	Total Arab OPEC <sup>3</sup>
	Thousand Barrels per Day										
1973 AVERAGE	136	164	486	71	213	223	459	1,135	106	2,993	915
1974 AVERAGE	190	4	461	74	300	469	713	979	88	3,280	752
1975 AVERAGE	282	232	715	117	390	280	762	702	122	3,601	1,383
1976 AVERAGE	432	453	1,230	254	639	298	1,025	700	134	5,066	2,424
1977 AVERAGE	559	723	1,380	335	541	535	1,143	690	287	6,193	3,185
1978 AVERAGE	649	654	1,144	385	573	555	919	645	226	5,751	2,963
1979 AVERAGE	636	658	1,356	281	420	304	1,080	690	212	5,637	3,056
1980 AVERAGE	488	554	1,281	172	348	9	857	481	130	4,300	2,551
1981 AVERAGE	311	319	1,129	81	366	0	620	406	90	3,323	1,848
1982 January	254	161	877	111	289	0	663	376	128	2,859	1,403
February	139	92	693	89	244	0	584	355	102	2,297	1,054
March	91	37	555	155	200	0	522	399	91	2,051	860
April	85	0	511	122	215	0	427	426	85	1,871	740
May	179	0	601	116	236	0	222	422	54	1,830	897
June	115	0	593	94	215	72	537	361	110	2,096	820
July	159	0	660	108	327	69	910	356	95	2,685	965
August	181	0	489	133	271	27	574	299	133	2,107	818
September	179	0	432	57	191	21	477	518	69	1,943	677
October	249	7	494	61	242	108	313	504	106	2,084	810
November	247	14	489	47	283	34	479	528	115	2,235	797
December	155	0	237	12	265	88	462	399	73	1,690	421
AVERAGE	170	26	552	92	248	35	514	412	97	2,146	854
1983 January	204	0	282	47	255	43	186	324	43	1,384	533
February	104	0	214	9	217	0	92	371	28	1,035	326
March	63	0	103	0	138	0	121	425	173	1,023	183
April	228	0	180	(8)	210	0	186	508	125	1,438	409
May	284	0	122	12	324	37	352	444	69	1,645	419
June	300	0	175	40	502	38	402	335	146	1,938	515
July	282	0	182	58	464	112	525	431	187	2,240	599
August	370	0	426	45	416	213	464	477	230	2,641	866
September	413	0	587	21	516	86	324	472	208	2,627	1,074
October	261	0	638	16	368	12	307	337	169	2,108	938
November	165	0	545	56	318	21	214	435	135	1,891	789
December	141	0	569	45	291	9	329	408	163	1,957	823
AVERAGE	235	0	336	29	335	48	294	414	140	1,832	625
1984 January	242	0	463	114	278	0	243	547	51	1,939	828
February	348	0	324	33	267	0	244	481	174	1,871	723
AVERAGE	293	0	396	75	272	0	243	515	111	1,906	777

<sup>1</sup> Excludes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European areas, as refined petroleum products which were refined from crude oil produced in OPEC countries.

<sup>2</sup> Includes Ecuador, Gabon, Iraq, Kuwait, and Qatar.

<sup>3</sup> Includes Algeria, Libya, Saudi Arabia, United Arab Emirates, Iraq, Kuwait, and Qatar.

Footnotes continued on following page.

Crude Oil and Petroleum Product Imports (continued)

	Imports from Non-OPEC Sources <sup>4</sup>										
	Bahamas	Canada	Mexico	Nether- lands Antilles	Trinidad and Tobago	United Kingdom	Puerto Rico	Virgin Islands	Other Non OPEC	Total Non OPEC	Total Imports
	Thousand Barrels per Day										
1973 AVERAGE	174	1,325	16	585	255	15	99	329	465	3,263	6,256
1974 AVERAGE	164	1,070	8	511	251	8	90	391	340	2,832	6,112
1975 AVERAGE	152	846	71	332	242	14	90	408	300	2,454	6,056
1976 AVERAGE	118	599	87	275	274	31	88	422	353	2,247	7,313
1977 AVERAGE	171	517	179	211	289	126	105	466	550	2,614	8,807
1978 AVERAGE	160	467	318	229	253	180	94	429	484	2,613	8,363
1979 AVERAGE	147	538	439	231	190	202	92	431	548	2,819	8,456
1980 AVERAGE	78	455	533	225	176	176	88	388	491	2,609	6,909
1981 AVERAGE	74	447	522	197	133	375	62	327	534	2,672	5,996
1982 January	58	513	425	179	106	346	62	334	452	2,474	5,332
February	67	537	476	221	120	181	38	362	508	2,510	4,807
March	43	437	503	189	118	294	62	307	480	2,433	4,484
April	82	360	476	184	166	247	36	266	690	2,507	4,378
May	77	419	766	152	95	516	47	302	607	2,981	4,811
June	32	481	797	148	129	557	58	322	708	3,231	5,327
July	64	536	783	158	118	433	38	376	698	3,204	5,890
August	80	443	853	145	106	520	24	317	650	3,137	5,244
September	92	493	897	195	89	631	51	278	746	3,472	5,414
October	45	459	682	148	109	666	52	262	801	3,222	5,306
November	51	553	860	212	90	623	81	334	706	3,508	5,744
December	88	561	689	174	102	438	48	338	480	2,916	4,606
AVERAGE	65	482	685	175	112	456	50	316	627	2,968	5,113
1983 January	68	536	849	218	73	315	40	299	588	2,988	4,372
February	92	592	722	179	81	193	50	192	554	2,655	3,691
March	86	488	760	187	78	240	43	162	563	2,606	3,629
April	167	452	981	216	85	421	20	183	781	3,308	4,744
May	135	501	944	153	108	483	42	235	651	3,252	4,898
June	137	576	831	181	120	424	48	252	712	3,281	5,218
July	69	633	849	191	103	369	37	364	836	3,450	5,690
August	142	540	891	194	90	461	40	313	725	3,395	6,036
September	137	523	832	251	82	472	33	308	822	3,461	6,088
October	164	539	771	172	106	414	48	370	565	3,149	5,256
November	143	542	717	144	110	334	55	440	793	3,278	5,168
December	119	592	718	153	113	429	22	271	613	3,030	4,986
AVERAGE	122	542	822	187	96	381	40	283	684	3,156	4,988
1984 January	152	624	705	277	54	382	53	390	772	3,408	5,347
February	142	620	747	288	77	398	58	418	1,083	3,772	5,643
AVERAGE	147	622	725	282	65	361	56	403	922	3,584	5,490

Footnotes continued.

<sup>4</sup> Includes petroleum imported into the United States indirectly from OPEC countries, primarily from Caribbean and West European areas, as refined petroleum products which were refined from crude oil produced in OPEC countries.

(\*) = Less than 500 barrels per day.

Note: Beginning in October 1977, Strategic Petroleum Reserve imports are included.

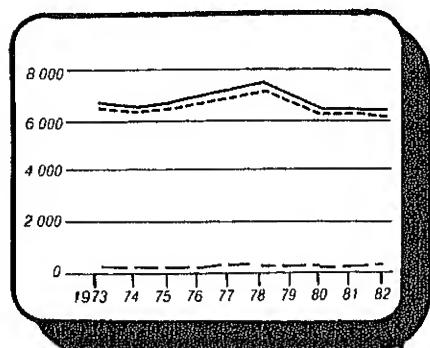
Total may not equal sum of components due to independent rounding.

Geographic coverage: The 50 United States and the District of Columbia.

Source: See the last page of this section.

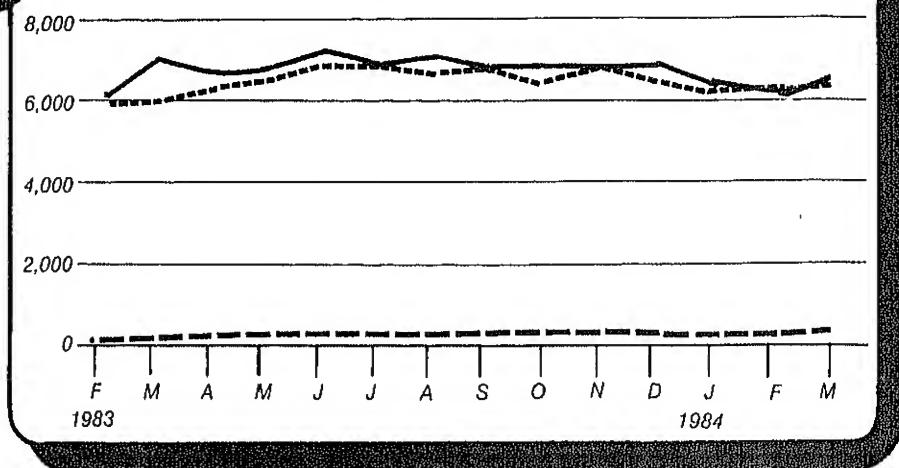
## Motor Gasoline Supply and Disposition

(Thousand Barrels Per Day)



Annual

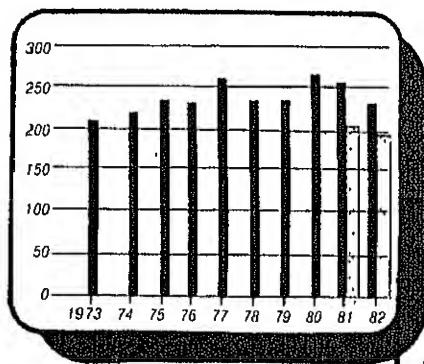
Legend  
Product Supplied  
Finished Gasoline Production  
Finished Gasoline Imports



Monthly

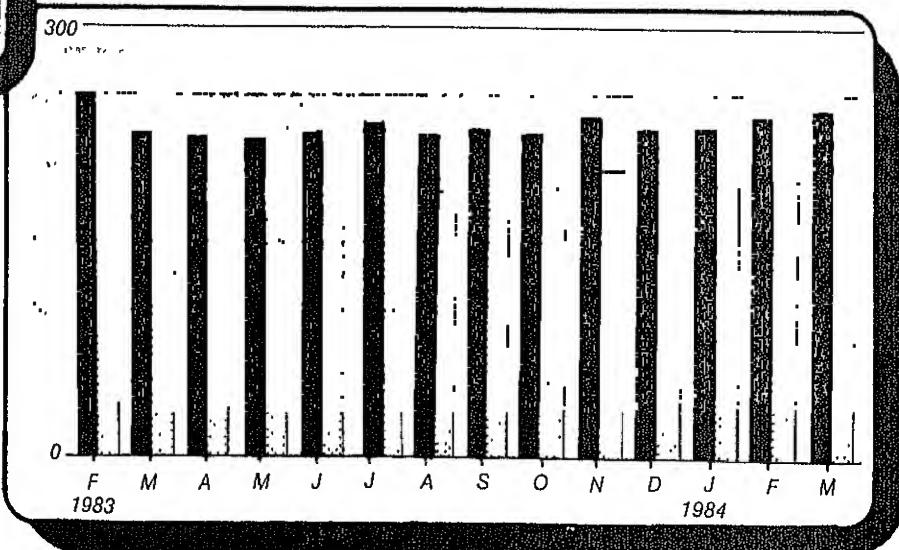
## Motor Gasoline Ending Stocks

(Million Barrels)



Annual

Legend  
Total Motor Gasoline<sup>1</sup>  
Finished Motor Gasoline  
Average Stock Range<sup>2</sup>



Monthly

<sup>1</sup>Includes motor gasoline blending components

<sup>2</sup>Level and width of Average Stock Range for total motor gasoline based on 3 years of data, July 80-June 83. See Explanatory Note 6

## Finished Motor Gasoline Supply and Disposition

	Supply			Disposition			Ending Stocks <sup>1</sup>		
	Total Production	Imports <sup>2</sup>	Stock Withdrawal <sup>3</sup>	Exports	Products Supplied			Total Motor Gasoline <sup>5</sup>	Finished Motor Gasoline
					Total	Unleaded <sup>4</sup>	Unleaded		
Thousand Barrels per Day									
1973	AVERAGE	6,535	134	9	4	6,674	NA	NA	209
1974	AVERAGE	6,360	204	-24	2	6,537	NA	NA	<sup>b</sup> 218
1975	AVERAGE	6,520	184	<sup>b</sup> -28	2	6,675	NA	NA	235
1976	AVERAGE	6,841	131	10	3	6,978	NA	NA	231
1977	AVERAGE	7,033	217	-72	2	7,177	1,978	27.5	268
1978	AVERAGE	7,169	190	54	1	7,412	2,521	34.0	238
1979	AVERAGE	6,852	181	2	(s)	7,034	2,798	39.8	237
1980	AVERAGE	6,506	140	-66	1	6,579	3,067	46.6	<sup>b</sup> 261
1981	AVERAGE <sup>7</sup>	6,405	157	<sup>b</sup> 28	2	6,588	3,284	49.5	253
1982	January	6,167	128	-316	18	5,961	3,067	51.5	261
	February	5,899	133	172	8	6,196	3,210	51.8	257
	March	5,994	183	334	44	6,466	3,358	51.9	247
	April	6,095	185	650	33	6,897	3,495	50.7	221
	May	6,319	182	177	23	6,655	3,415	51.3	214
	June	6,754	230	-134	14	6,835	3,565	52.2	219
	July	6,768	225	-178	24	6,790	3,577	52.7	226
	August	6,419	291	-81	16	6,614	3,526	53.3	227
	September	6,527	223	-198	22	6,531	3,404	52.1	234
	October	6,262	185	-42	15	6,391	3,351	52.4	234
	November	6,273	211	101	11	6,574	3,451	52.5	230
	December	6,542	178	-165	7	6,549	3,485	53.2	<sup>b</sup> 235
	AVERAGE	6,338	197	25	20	6,539	3,409	52.1	<sup>b</sup> 194
1983	January	6,020	148	<sup>b</sup> -186	(s)	5,981	3,352	56.0	251
	February	5,848	142	32	(s)	6,022	3,257	54.1	251
	March	5,897	205	765	23	6,843	3,820	52.9	224
	April	6,202	273	27	1	6,501	3,505	53.9	221
	May	6,386	284	-128	1	6,540	3,547	54.2	225
	June	6,646	265	118	22	7,008	3,708	54.2	223
	July	6,704	297	-210	18	6,773	3,752	55.4	231
	August	6,539	260	159	13	6,946	3,836	55.2	226
	September	6,582	285	-160	14	6,693	3,671	54.8	230
	October	6,188	335	60	2	6,581	3,698	56.2	228
	November	6,636	269	-274	2	6,629	3,714	56.0	236
	December	6,314	217	340	25	6,846	3,967	57.9	222
	AVERAGE	6,332	249	47	10	6,617	3,646	55.1	185
1984	January	6,037	233	-1	1	6,268	3,806	57.5	226
	February*	R 6,320	R 303	R -384	2	R 6,297	3,585	57.5	R 237
	March**	6,374	365	-253	NA	6,473	NA	NA	242
	AVERAGE	6,242	300	-209	NA	6,328	NA	NA	202

<sup>1</sup> Stocks are totals as of end of period.

<sup>2</sup> Beginning in 1981, excludes blending components.

<sup>3</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>4</sup> Includes gasohol.

<sup>5</sup> Includes motor gasoline blending components.

<sup>6</sup> In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

<sup>7</sup> Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

\* See Explanatory Note 9.3.

\*\* Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

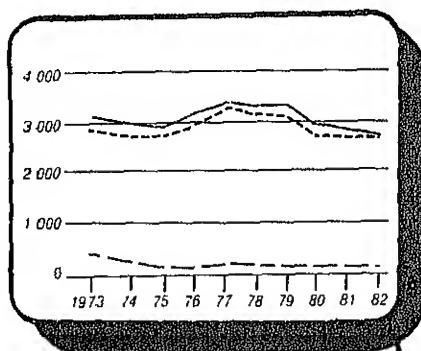
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

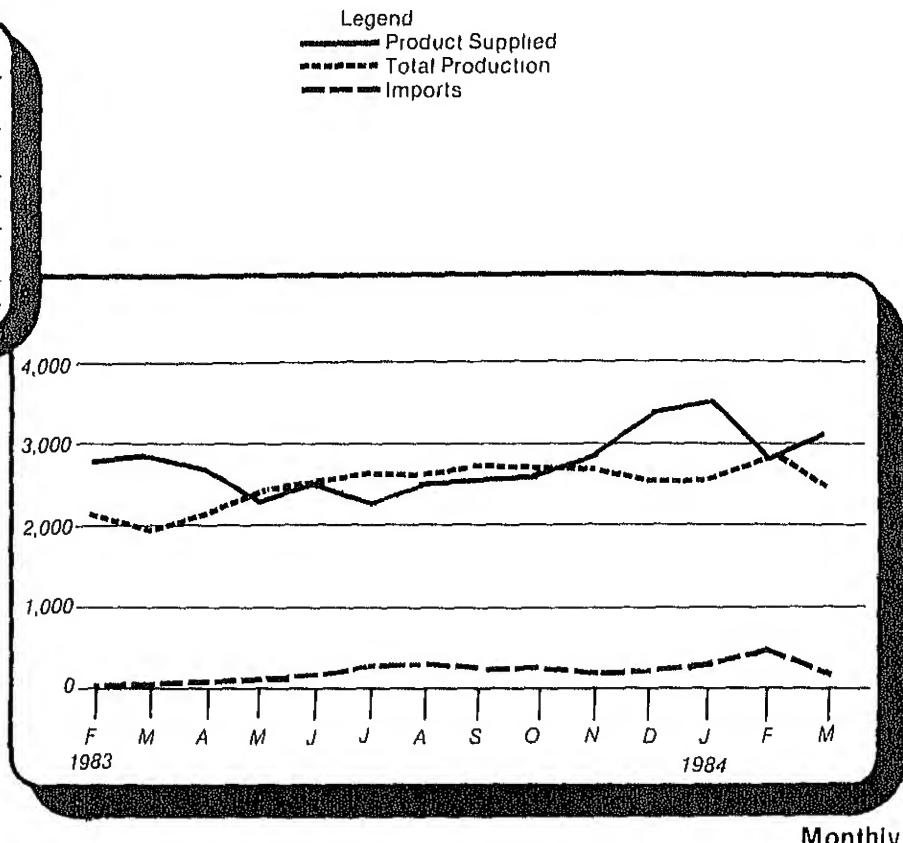
Source: See the last page of this section.

## Distillate Fuel Oil Supply and Disposition

(Thousand Barrels Per Day)



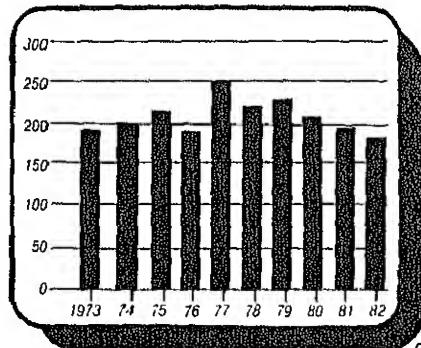
Annual



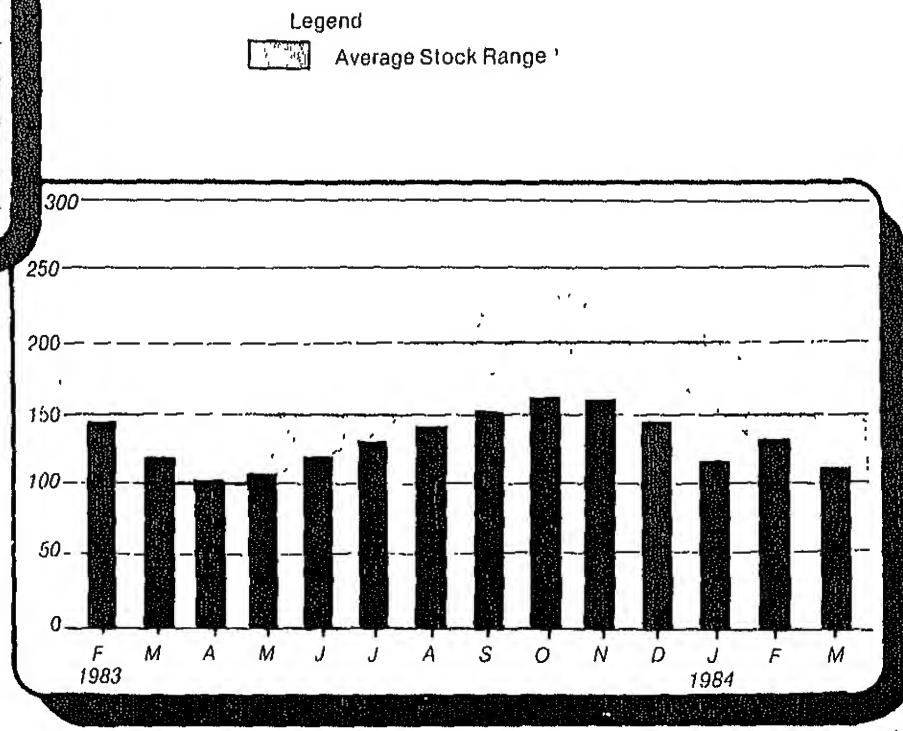
Monthly

## Distillate Fuel Oil Ending Stocks

(Million Barrels)



Annual



Monthly

<sup>1</sup> Level and width of Average Stock Range for distillate fuel oil is based on 3 years of data, July 80-July 83  
See Explanatory Note 6.

## Distillate Fuel Oil Supply and Disposition

	Supply				Disposition		Ending Stocks <sup>1</sup>	
	Total Production	Imports	Stock Withdrawal <sup>2</sup>	Crude Used Directly <sup>3</sup>	Exports	Products Supplied <sup>3</sup>		
	Thousand Barrels per Day						Million Barrels	
1973	AVERAGE	2,822	392	-115	2	9	3,092	196
1974	AVERAGE	2,669	289	-9	2	2	2,948	<sup>4</sup> 200
1975	AVERAGE	2,654	155	<sup>4</sup> 40	2	1	2,851	209
1976	AVERAGE	2,924	146	62	1	1	3,133	186
1977	AVERAGE	3,278	250	-176	1	1	3,352	250
1978	AVERAGE	3,167	173	93	1	3	3,432	216
1979	AVERAGE	3,153	193	-34	1	3	3,311	229
1980	AVERAGE	2,662	142	64	1	3	2,866	<sup>4</sup> 205
1981	AVERAGE <sup>5</sup>	2,613	173	<sup>4</sup> 38	10	5	2,829	192
1982	January	2,591	97	876	10	90	3,484	164
	February	2,427	132	605	11	90	3,085	147
	March	2,288	48	682	10	84	2,945	126
	April	2,358	59	612	13	64	2,978	108
	May	2,618	74	-183	10	75	2,444	114
	June	2,729	102	-335	10	55	2,452	124
	July	2,734	125	-789	11	24	2,058	148
	August	2,507	80	-339	10	40	2,218	159
	September	2,657	61	-85	12	139	2,507	161
	October	2,838	91	-289	8	66	2,581	170
	November	2,860	145	-514	8	24	2,475	186
	December	2,655	109	225	10	143	2,855	<sup>4</sup> 179
	AVERAGE	2,606	93	35	10	74	2,671	
1983	January	2,314	58	<sup>4</sup> 561	NA	173	2,760	168
	February	2,136	58	742	NA	105	2,832	147
	March	1,991	42	926	NA	59	2,900	119
	April	2,169	73	518	NA	47	2,713	103
	May	2,444	141	-193	NA	50	2,341	109
	June	2,545	175	-154	NA	40	2,526	114
	July	2,600	259	-556	NA	55	2,248	131
	August	2,612	302	-403	NA	43	2,467	144
	September	2,725	253	-374	NA	37	2,568	155
	October	2,682	255	-275	NA	55	2,606	163
	November	2,679	189	65	NA	54	2,879	161
	December	2,524	212	675	NA	54	3,358	140
	AVERAGE	2,454	168	124	NA	64	2,682	
1984	January	2,585	270	676	NA	40	3,490	119
	February <sup>*</sup>	R 2,864	R 458	R -439	NA	41	R 2,842	R 132
	March <sup>**</sup>	2,436	117	573	NA	NA	3,078	113
	AVERAGE	2,623	278	285	NA	NA	3,143	

<sup>1</sup> Stocks are totals as of end of period.

<sup>2</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>3</sup> Beginning in January 1984, product supplied for distillate fuel oil does not include crude oil used directly. See Explanatory Note 4.

<sup>4</sup> In January 1975, 1981, and 1984, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

<sup>5</sup> Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

\* See Explanatory Note 9.4.

\*\* Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

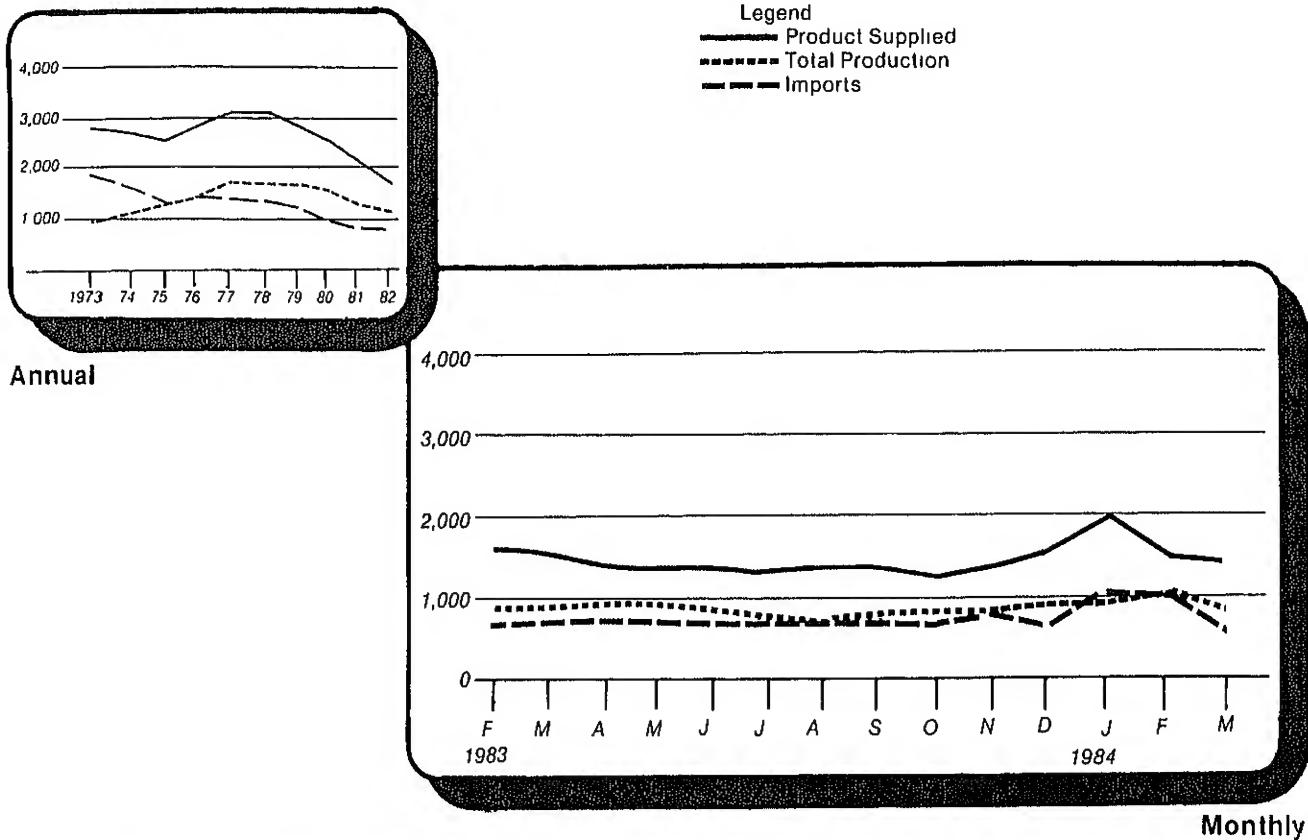
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

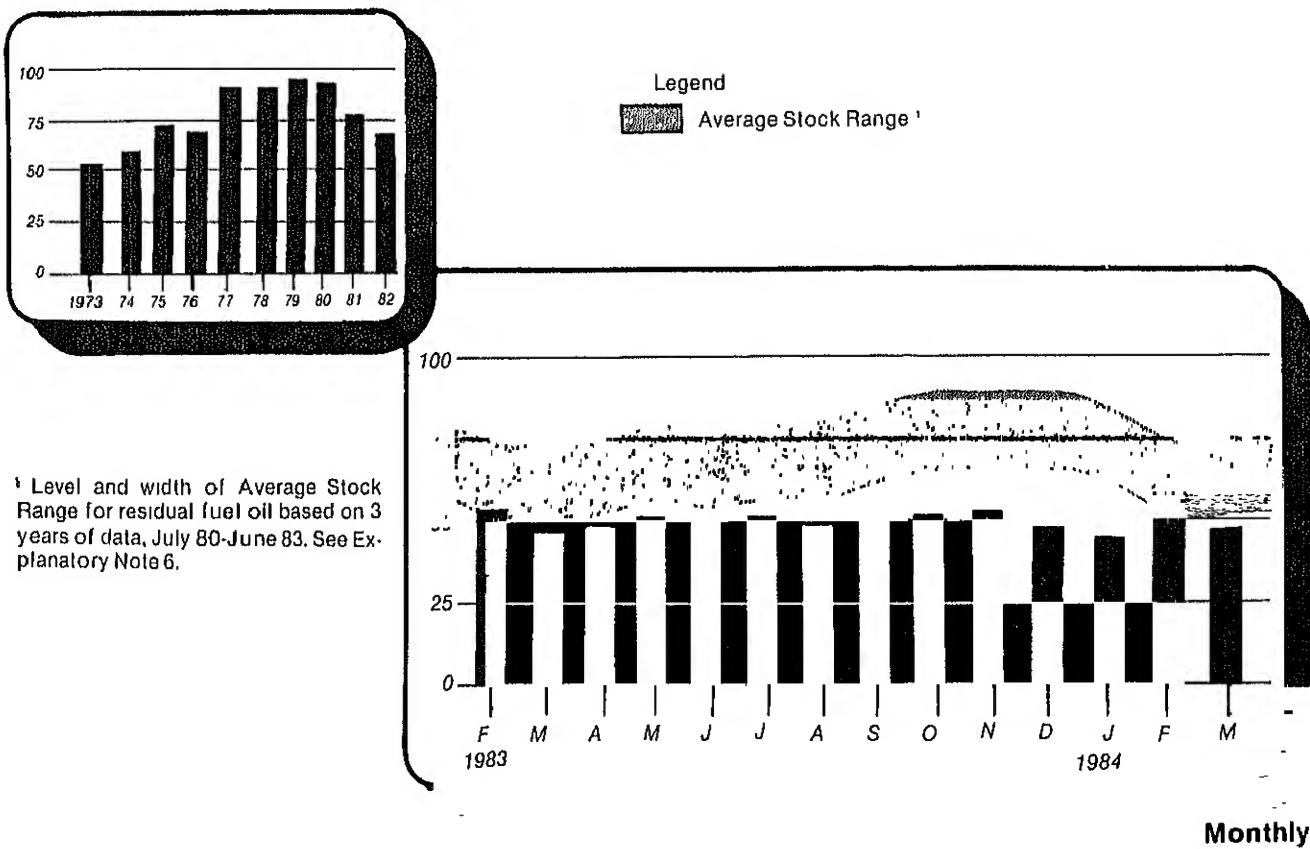
## Residual Fuel Oil Supply and Disposition

(Thousand Barrels Per Day)



## Residual Fuel Oil Ending Stocks

(Million Barrels)



<sup>1</sup> Level and width of Average Stock Range for residual fuel oil based on 3 years of data, July 80-June 83. See Explanatory Note 6.

## Residual Fuel Oil Supply and Disposition

	Supply				Disposition		Ending Stocks <sup>1</sup>
	Total Production	Imports	Stock Withdrawal <sup>2</sup>	Crude Used Directly <sup>3</sup>	Exports	Products Supplied <sup>3</sup>	
	Thousand Barrels per Day						Million Barrels
1973 AVERAGE	971	1,853	5	17	23	2,822	53
1974 AVERAGE	1,070	1,587	-17	13	14	2,639	<sup>4</sup> 60
1975 AVERAGE	1,235	1,223	<sup>4</sup> 2	15	15	2,462	74
1976 AVERAGE	1,377	1,413	5	17	12	2,801	72
1977 AVERAGE	1,754	1,359	-48	13	6	3,071	90
1978 AVERAGE	1,667	1,355	-1	13	13	3,023	90
1979 AVERAGE	1,687	1,151	-15	12	9	2,826	96
1980 AVERAGE	1,580	939	10	12	33	2,508	<sup>4</sup> 92
1981 AVERAGE <sup>5</sup>	1,321	800	<sup>4</sup> 37	48	118	2,088	78
1982 January	1,235	831	301	53	235	2,185	69
February	1,186	956	363	53	213	2,344	58
March	1,123	912	12	53	197	1,903	58
April	1,166	788	150	52	234	1,923	54
May	1,128	742	-172	52	191	1,560	59
June	1,074	652	-57	50	217	1,501	61
July	1,028	657	58	49	239	1,550	59
August	965	551	203	47	235	1,531	53
September	1,008	872	-306	44	148	1,470	62
October	955	783	-57	43	234	1,490	64
November	989	837	-94	43	182	1,591	66
December	989	747	6	43	186	1,598	<sup>4</sup> 66
AVERAGE	1,070	776	32	48	209	1,716	
1983 January	935	691	<sup>4</sup> 243	NA	294	1,574	61
February	857	632	270	NA	191	1,568	53
March	833	686	220	NA	169	1,569	46
April	942	743	-10	NA	310	1,364	47
May	930	709	-139	NA	190	1,310	51
June	832	676	28	NA	219	1,317	50
July	771	682	-58	NA	90	1,306	52
August	706	705	115	NA	165	1,362	48
September	815	690	-47	NA	134	1,324	50
October	799	634	-56	NA	153	1,224	51
November	848	777	-101	NA	167	1,358	54
December	893	646	173	NA	141	1,570	49
AVERAGE	846	689	52	NA	185	1,403	
1984 January	953	1,061	119	NA	161	1,981	45
February*	R 1,003	R 1,107	R - 420	NA	87	R 1,602	R 58
March**	862	584	146	NA	NA	1,447	48
AVERAGE	938	913	-43	NA	NA	1,678	

<sup>1</sup> Stocks are totals as of end of period.

<sup>2</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>3</sup> Beginning in January 1983, product supplied for residual fuel oil does not include crude oil used directly. See Explanatory Note 4.

<sup>4</sup> In January 1975, 1981, and 1983, numerous respondents were added to surveys affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

<sup>5</sup> Beginning in January 1981, survey forms were modified. See Explanatory Note 12.

\* See Explanatory Note 9.4.

\*\* Italics denote estimates based upon preliminary data. See Explanatory Note 8.

R = Revised data. NA = Not available. (s) = Less than 500 barrels per day.

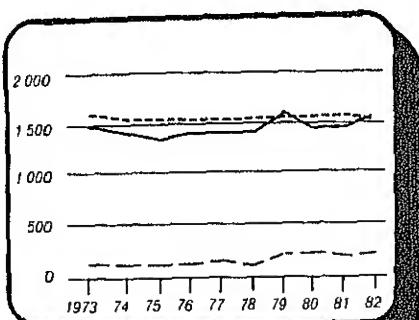
Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

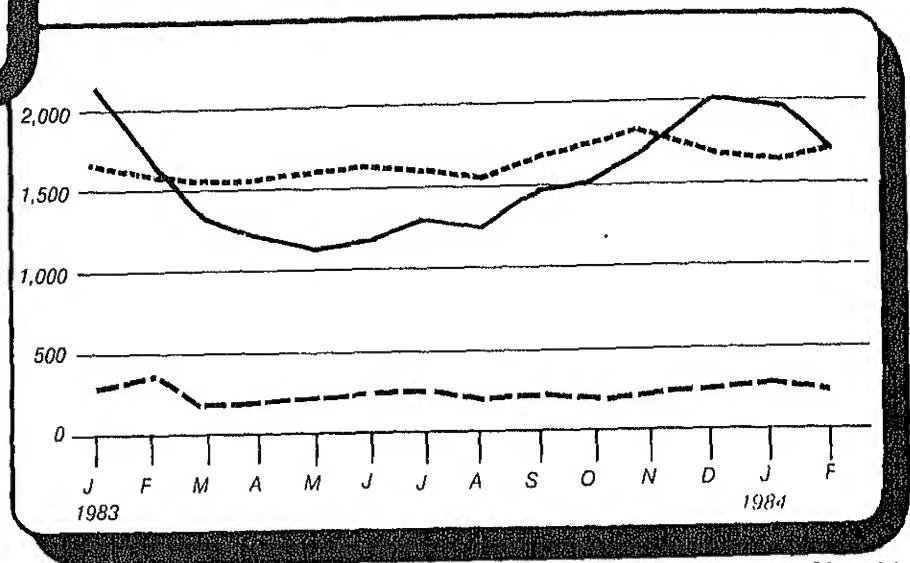
## Liquefied Petroleum Gases Supply and Disposition

(Thousand Barrels Per Day)



Annual

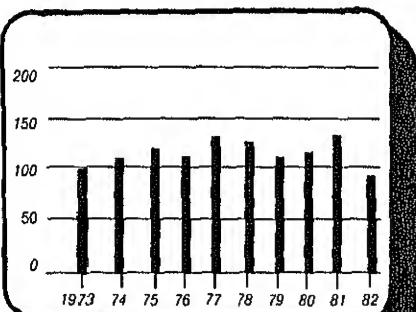
Legend  
 — Product Supplied  
 - - - Total Production  
 - - - Imports



Monthly

## Liquefied Petroleum Gases Ending Stocks

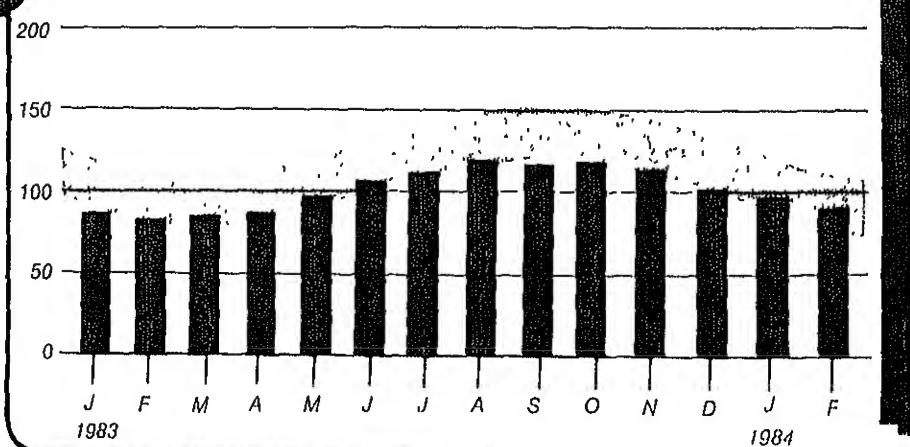
(Million Barrels)



Annual

Legend  
 [bar] Average Stock Range<sup>1</sup>

<sup>1</sup> Level and width of Average Stock range for liquefied petroleum gases based on 3 years of data, July 80-June 83. See Explanatory Note 6



Monthly

## Liquefied Petroleum Gases Supply and Disposition

	Supply			Disposition			Ending Stocks <sup>1</sup>
	Total Production	Imports	Stock Withdrawal <sup>2</sup>	Refinery Inputs	Exports	Products Supplied	
	Thousand Barrels per Day						
1973 AVERAGE	1,600	132	-35	220	27	1,449	99
1974 AVERAGE	1,565	123	-38	220	25	1,406	<sup>3</sup> 113
1975 AVERAGE	1,527	112	<sup>3</sup> -35	246	26	1,333	125
1976 AVERAGE	1,535	130	24	260	25	1,404	116
1977 AVERAGE	1,566	161	-55	233	18	1,422	136
1978 AVERAGE	1,537	123	12	239	20	1,413	132
1979 AVERAGE	1,556	217	70	236	15	1,592	111
1980 AVERAGE	1,535	216	-27	233	21	1,469	<sup>3</sup> 120
1981 AVERAGE	1,571	244	<sup>3</sup> -18	289	42	1,466	135
1982 January	1,565	314	443	391	67	1,863	121
February	1,466	291	243	327	51	1,621	114
March	1,544	223	211	289	74	1,615	108
April	1,508	188	98	257	77	1,458	105
May	1,565	186	-71	234	43	1,403	107
June	1,515	192	-86	262	106	1,254	109
July	1,476	227	-13	253	37	1,399	110
August	1,511	125	-45	254	61	1,276	111
September	1,538	247	37	274	85	1,463	110
October	1,517	194	97	306	81	1,421	107
November	1,542	267	175	363	37	1,583	102
December	1,580	258	256	395	56	1,642	<sup>3</sup> 94
AVERAGE	1,528	226	111	300	65	1,499	
1983 January	1,662	240	<sup>3</sup> 618	313	118	2,088	84
February	1,560	305	84	237	76	1,636	81
March	1,517	166	-51	189	127	1,316	83
April	1,531	124	-107	198	116	1,232	86
May	1,545	167	-326	207	84	1,094	96
June	1,593	172	-333	205	59	1,169	106
July	1,571	191	-206	217	55	1,284	112
August	1,505	160	-183	229	29	1,225	118
September	1,625	178	-23	236	86	1,457	119
October	1,688	160	-61	268	32	1,487	121
November	1,784	180	78	361	33	1,648	118
December	1,644	247	575	358	66	2,043	<sup>3</sup> 101
AVERAGE	1,602	190	6	252	73	1,473	
1984 January	1,610	269	<sup>3</sup> 470	333	23	1,993	93
February*	1,690	237	146	323	41	1,708	89
AVERAGE	1,648	254	314	329	32	1,855	

<sup>1</sup> Stocks are totals as of end of period.

<sup>2</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>3</sup> In January 1975, 1981, 1983, and 1984, a new stock basis was established affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

\* See Explanatory Note 9.5.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

### Other Petroleum Products<sup>1</sup> Supply and Disposition

	Supply			Disposition			Ending Stocks <sup>2</sup>
	Total Production	Imports	Stock Withdrawal <sup>3</sup>	Refinery Inputs	Exports	Products Supplied	
	Thousand Barrels per Day						Million Barrels
1973 AVERAGE	3,693	502	-9	750	166	3,270	208
1974 AVERAGE	3,558	432	-28	665	174	3,123	<sup>4</sup> 218
1975 AVERAGE	3,424	277	<sup>4</sup> -2	537	160	3,002	219
1976 AVERAGE	3,643	206	-5	524	175	3,145	220
1977 AVERAGE	3,912	205	-27	514	165	3,410	230
1978 AVERAGE	4,046	166	14	492	167	3,568	225
1979 AVERAGE	4,153	195	-37	352	209	3,749	238
1980 AVERAGE	3,956	210	-23	311	198	3,634	<sup>4</sup> 247
1981 AVERAGE	3,739	226	<sup>4</sup> 46	723	199	3,088	282
1982 January	3,171	269	-7	624	180	2,631	282
February	3,403	305	-153	663	138	2,755	287
March	3,466	243	-191	725	161	2,631	293
April	3,408	309	73	796	204	2,790	290
May	3,317	318	184	824	210	2,785	285
June	3,547	315	123	812	216	2,954	281
July	3,660	408	-1	856	187	3,023	281
August	3,583	346	217	743	202	3,201	274
September	3,533	375	105	749	213	3,051	271
October	3,529	383	244	915	266	2,976	264
November	3,498	423	-28	837	269	2,786	264
December	3,324	313	366	885	275	2,842	<sup>4</sup> 253
AVERAGE	3,453	334	80	787	211	2,869	
1983 January	3,222	297	<sup>4</sup> -371	570	271	2,307	271
February	3,270	287	-1	680	232	2,645	271
March	3,400	298	-94	570	249	2,786	273
April	3,363	377	3	596	247	2,901	273
May	3,448	364	26	694	242	2,902	273
June	3,674	427	99	715	292	3,197	270
July	3,703	393	106	757	209	3,237	266
August	3,774	435	23	689	242	3,302	266
September	3,861	460	-31	768	236	3,287	267
October	3,579	427	-124	701	195	2,985	270
November	3,560	442	101	912	238	2,955	267
December	3,106	450	387	877	257	2,808	<sup>4</sup> 255
AVERAGE	3,498	388	10	711	242	2,943	
1984 January	3,391	486	<sup>4</sup> -177	561	207	2,931	253
February*	3,582	586	-256	751	225	2,935	261
AVERAGE	3,483	534	-215	653	216	2,933	

<sup>1</sup> Includes pentanes plus, other hydrocarbons and alcohol, unfinished oils, gasoline blending components and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil, and liquefied petroleum gases.

<sup>2</sup> Stocks are totals as of end of period.

<sup>3</sup> A negative number indicates an increase in stocks and a positive number indicates a decrease.

<sup>4</sup> In January 1975, 1981, 1983, and 1984, a new stock basis was established affecting stocks reported and stock withdrawal calculations. See Explanatory Note 10.

\* See Explanatory Note 9.6.

Note: Geographic coverage is the 50 United States and the District of Columbia.

Total may not equal sum of components due to independent rounding.

Source: See the last page of this section.

# Sources

1. 1973 through 1976: U.S. Department of the Interior, Bureau of Mines, Mineral Industry Surveys, "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual."
2. 1977 through 1980: Energy Information Administration (EIA), *Energy Data Reports*, "Petroleum Statement, Annual" and "PAD Districts Supply/Demand, Annual," and unleaded gasoline data from *Monthly Petroleum Statistics Report*.
3. January 1981 through December 1982: EIA, *Petroleum Supply Annual*.
4. January 1983 through February 1984: Detailed statistics in appropriated issued of the *Petroleum Supply Monthly*. (see Explanatory Notes 9.1 through 9.6).
5. March 1984: Estimates based on EIA weekly data (except domestic crude oil production)(see Explanatory Note 1.1).
6. January 1983 through March 1984: Domestic crude oil production estimate based on historical statistics from State Conservation Agencies and the U.S. Geological Survey. (See Explanatory Note 3).



# Detailed Statistics

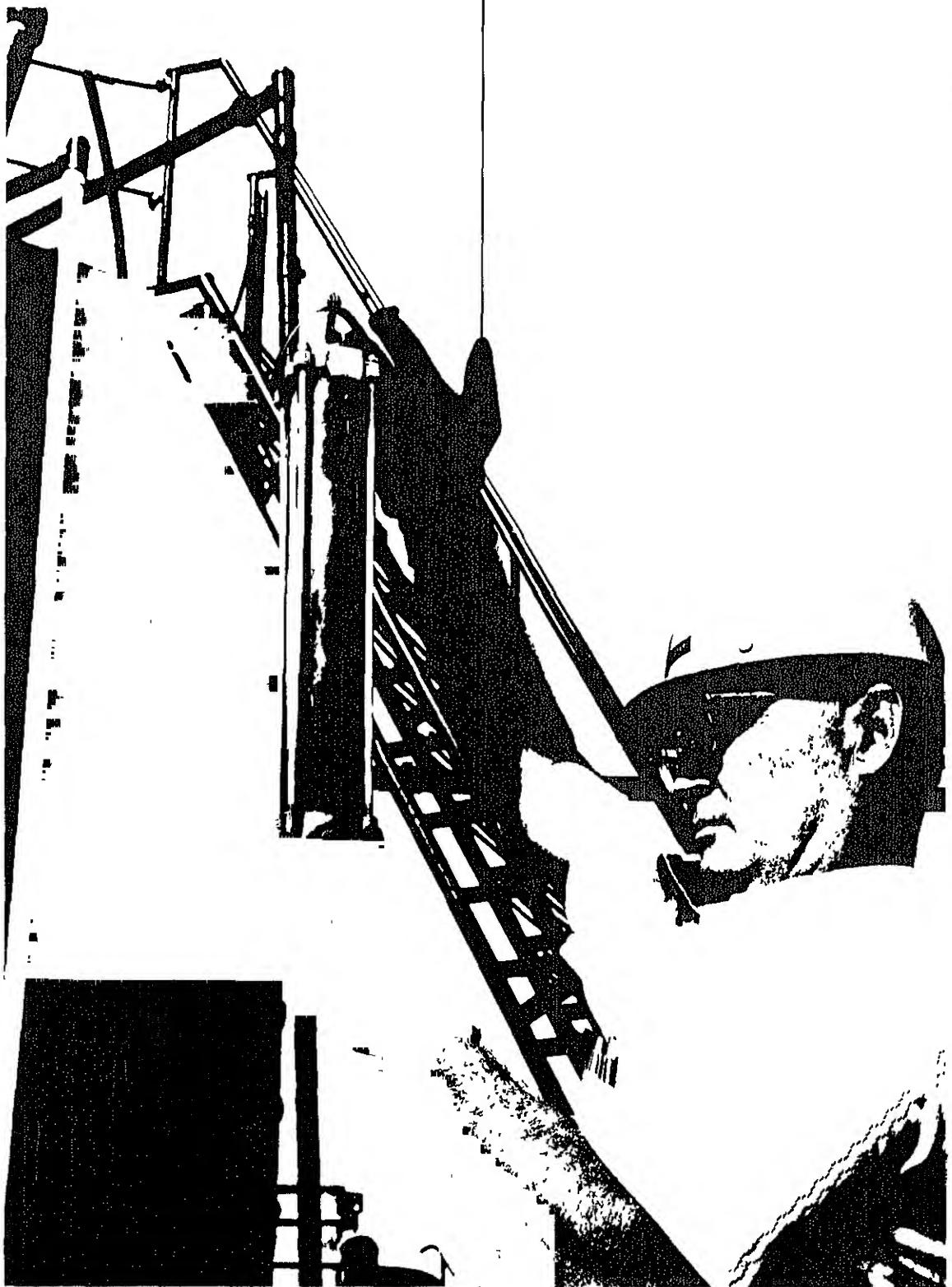




Table 1. U.S. Petroleum Balance, February 1984

		Current Month		Year-to-date		
		Thousand Barrels	Thousand Barrels per Day	Thousand Barrels	Thousand Barrels per Day	
<b>Crude Oil (Including Lease Condensate)</b>						
Field Production						
(1) Alaska .....	.....	E 50,472	1,740	E 104,434	1,741	
(2) Lower 48 States .....	.....	E 202,569	6,985	E 417,026	6,950	
(3) Total U.S. .....	.....	E 263,041	8,726	E 521,460	8,691	
Net Imports						
(4) Imports (Gross Excluding SPR) .....	.....	83,158	2,868	170,055	2,848	
(5) SPR Imports .....	.....	2,452	85	8,649	144	
(6) Exports .....	.....	5,355	185	10,094	168	
(7) Imports (Net Including SPR) .....	.....	80,264	2,767	169,410	2,824	
Other Sources						
(8) SPR Withdrawal (+) or Addition (-) .....	.....	-2,789	-96	-8,149	-136	
(9) Other Stock Withdrawal (+) or Addition (-) .....	.....	8,186	282	2,950	49	
(10) Product Supplied and Losses .....	.....	-1,904	-66	-3,920	-65	
(11) Unaccounted for 1 .....	.....	14,116	487	28,107	468	
(12) Total Other Sources .....	.....	17,609	607	18,970	316	
(13) Crude Input to Refineries .....	.....	350,904	12,100	709,849	11,831	
(13) = (3) + (7) + (12)						
<b>Natural Gas Plant Liquids (NGPL)</b>						
(14) Field Production .....	.....	47,250	1,629	96,396	1,807	
(15) Net Imports 2 .....	.....	1,755	60	2,352	38	
(16) Stock Withdrawal (+) or Addition (-) 2 .....	.....	219	8	483	8	
(17) Total NGPL Supply .....	.....	49,224	1,697	99,211	1,852	
Other Liquids						
<b>Unfinished Oils and Gasoline Blending Components, Total</b>						
(18) Stock Withdrawal (+) or Addition (-) .....	.....	649	19	-5,832	-97	
(19) Imports .....	.....	8,087	279	17,957	299	
(20) Other Hydrocarbons and Alcohol New Supply (Field Production) .....	.....	1,598	55	2,765	46	
(21) Refinery Processing Gain 1 .....	.....	17,373	599	32,232	537	
(22) Crude Oil Product Supplied .....	.....	1,884	65	3,873	65	
(23) Total Other Liquids .....	.....	29,491	1,017	50,995	850	
(23) = (18) through (22)						
(24) Total Production of Products 3 .....	.....	429,619	14,814	860,061	14,333	
(24) = (13) + (17) + (23)						
<b>Net Imports of Refined Products 3</b>						
(25) Imports (Gross) .....	.....	68,110	2,349	129,498	2,158	
(26) Exports .....	.....	11,438	394	24,531	407	
(27) Imports (Net) .....	.....	56,671	1,954	104,966	1,751	
(28) Total New Supply of Products .....	.....	486,290	16,769	985,021	16,084	
(28) = (24) + (27)						
(29) Refined Products Stock Withdrawal (+) or Addition (-) 3 .....	.....	-40,017	-1,380	-231	-4	
(30) Total Petroleum Products Supplied for Domestic Use .....	.....	446,273	15,389	984,790	16,080	
(30) = (28) + (29)						
(31) Finished Motor Gasoline .....	.....	180,870	6,237	375,170	6,256	
(32) Distillate Fuel Oil .....	.....	82,425	2,842	190,802	3,177	
(33) Residual Fuel Oil .....	.....	46,458	1,602	107,956	1,798	
(34) Liquefied Petroleum Gases .....	.....	49,625	1,708	111,302	1,855	
(35) Other 4 .....	.....	85,111	2,935	175,987	2,933	
(36) Crude Oil .....	.....	1,884	65	3,873	65	
(37) Total Product Supplied .....	.....	446,273	15,389	984,790	16,080	
(37) = (31) through (36)						
<b>Ending Stocks, All Oils</b>						
(38) Crude Oil and Lease Condensate (Excluding SPR) .....	.....	340,226	--	340,226	--	
(39) Strategic Petroleum Reserve (SPR) .....	.....	387,238	--	387,238	--	
(40) Unfinished Oils .....	.....	109,638	--	109,638	--	
(41) Gasoline Blending Components 5 .....	.....	41,214	--	41,214	--	
(42) Pentanes Plus .....	.....	8,302	--	8,302	--	
(43) Finished Refined Products 3 .....	.....	577,281	--	577,281	--	
(44) Total Stocks .....	.....	1,463,899	--	1,463,899	--	

1 A balancing item.

2 Includes products in the pentanes plus category only.

3 For products included see Explanatory Note 9.7.

4 Includes pentanes plus, other liquids, and all finished petroleum products except finished motor gasoline, distillate fuel oil, residual fuel oil and liquefied petroleum gases.

5 Includes other hydrocarbons and alcohol.

E = Estimated.

-- Not Applicable.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes 1, 2 and 9.7.

Table 2. Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousand Barrels)

Commodity	Supply				Disposition					
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil	Crude Losses	Refinery Inputs	Exports	Products Supplied	Ending Stocks
Crude Oil (including lease condensate) .....	253,041	0	85,609	5,397	14,116	20	350,904	5,355	1,884	727,464
Natural Gas Liquids and LRGs .....										
Pentanes Plus .....	47,120	10,131	8,706	4,453	0	0	15,148	1,282	53,980	97,248
Liquified Petroleum Gases .....	8,250	0	1,825	219	0	0	5,769	80	4,455	8,302
Ethane .....	38,870	10,131	6,871	4,234	0	0	9,379	1,202	49,525	88,946
Propane .....	14,864	850	2,912	183	0	0	71	160	18,578	20,677
Normal Butane .....	15,342	8,089	2,322	2,232	0	0	127	708	27,150	42,150
Isobutane .....	5,877	1,200	982	2,059	0	0	5,718	254	4,086	16,196
2,847	-8	655	-240	0	0	0	3,463	80	-289	9,923
Other Liquids .....	1,598	0	8,087	549	0	0	16,007	0	-5,773	150,852
Other Hydrocarbons and Alcohol .....	1,598	0	0	-39	0	0	1,559	0	0	346
Unfinished Oils .....	0	0	6,374	1,176	0	0	10,687	0	-3,137	109,638
Motor Gasoline Blending Components .....	0	0	1,713	-538	0	0	3,812	0	-2,637	40,480
Aviation Gasoline Blending Components .....	0	0	0	-50	0	0	-51	0	0	1
Finished Petroleum Products .....	130	389,301	61,239	-44,251	0	0	0	10,237	396,182	488,335
Finished Motor Gasoline .....	75	183,205	8,779	-11,139	0	0	0	50	180,870	196,677
Finished Leaded Motor Gasoline .....	47	76,312	4,825	-4,229	0	0	0	50	76,905	96,501
Finished Unleaded Motor Gasoline .....	28	106,893	3,954	-6,910	0	0	0	0	103,965	100,176
Finished Aviation Gasoline .....	0	854	1	-207	0	0	0	0	0	648
Naphtha-Type Jet Fuel .....	0	5,588	106	0	0	0	0	63	5,802	6,149
Kerosene-Type Jet Fuel .....	0	27,110	3,138	-3,644	0	0	0	68	26,536	32,899
Kerosene .....	1	4,393	560	-1,744	0	0	0	1	3,209	9,254
Distillate Fuel Oil .....	40	83,018	13,292	-12,721	0	0	0	1,203	82,425	132,181
Residual Fuel Oil .....	0	29,073	32,089	-12,168	0	0	0	2,536	46,458	57,598
Naphtha < 400 Deg. for Petro. Feed. Use .....	0	0	1,174	-110	0	0	0	141	5,093	1,675
Other Oils > 400 Deg. for Petro. Feed. Use .....	0	7,623	0	-162	0	0	0	337	7,124	1,934
Special Naphthas .....	-50	1,837	1,681	-63	0	0	0	42	3,363	3,134
Lubricants .....	0	4,557	306	610	0	0	0	342	5,131	11,736
Waxes .....	0	428	60	28	0	0	0	23	493	657
Petroleum Coke .....	0	12,988	0	-689	0	0	0	5,394	6,905	6,324
Asphalt and Road Oil .....	0	7,023	5	-2,493	0	0	0	12	4,523	23,555
Still Gas .....	0	15,815	0	0	0	0	0	0	15,815	0
Miscellaneous Products .....	64	1,619	50	80	0	0	0	24	1,789	1,923
Total .....	301,889	399,432	163,641	-33,852	14,116	20	382,059	16,874	446,273	1,463,899

<sup>1</sup> Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.  
Sources and estimation procedures. See Explanatory Notes on Data Collection and Estimation.

Table 3. Year-to-Date Supply and Disposition of Crude Oil and Petroleum Products, January - February 1984  
(Thousand Barrels)

Commodity	Field Production	Refinery Production	Supply				Disposition			
			Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil	Crude Losses	Refinery Inputs	Exports	Products Supplied	Ending Stocks
<b>Crude Oil (including lease condensate)</b>										
	£ 521,460	0	179,504	-5,199	28,107	56	709,849	10,094	3,873	727,464
<b>Natural Gas Liquids and LRGs</b>										
Pentanes Plus	96,084	19,988	17,652	19,274	0	0	31,653	2,001	119,354	97,248
Liquefied Petroleum Gases	17,179	0	2,432	463	0	0	11,942	80	8,052	8,302
Ethane	78,915	19,988	15,221	18,811	0	0	19,711	1,921	111,302	88,946
Propane	30,146	1,418	5,869	702	0	0	118	160	37,856	20,677
Normal Butane	31,140	16,160	5,404	13,130	0	0	285	1,238	64,310	42,150
Isobutane	11,987	2,425	2,386	4,193	0	0	12,275	443	8,273	16,196
	5,642	-15	1,562	786	0	0	7,033	80	862	9,923
<b>Other Liquids</b>										
Other Hydrocarbons and Alcohol	2,765	0	17,957	-5,832	0	0	27,218	0	-12,328	150,852
Unfinished Oils	0	0	15,000	-61	0	0	2,704	0	0	346
Motor Gasoline Blending Components	0	0	2,498	-2,140	0	0	18,603	0	-5,284	109,638
Aviation Gasoline Blending Components	0	0	0	-3,560	0	0	5,983	0	-7,045	40,480
				-71	0	0	-72	0	1	388
<b>Finished Petroleum Products</b>										
Finished Motor Gasoline	302	780,964	114,277	-19,042	0	0	0	22,610	853,891	488,335
Finished Leaded Motor Gasoline	137	370,302	15,988	-11,182	0	0	0	75	375,170	196,677
Finished Unleaded Motor Gasoline	91	153,915	7,913	-2,417	0	0	0	75	159,427	96,501
Finished Aviation Gasoline	46	216,387	8,075	-8,765	0	0	0	0	215,743	100,176
Naphtha-Type Jet Fuel	0	1,425	1	-348	0	0	0	0	0	2,639
Naphtha	0	11,147	544	64	0	0	0	63	11,692	6,149
Kerosene-Type Jet Fuel	0	54,010	4,553	-531	0	0	0	386	57,645	32,899
Kerosene	4	9,988	1,096	-1,394	0	0	0	2	9,702	9,254
Distillate Fuel Oil	75	163,107	21,651	8,221	0	0	0	2,451	190,602	132,181
Residual Fuel Oil	0	58,605	64,971	-8,490	0	0	0	7,231	107,856	57,598
Naphtha < 400 Deg for Petro Feed Use	0	7,702	2,021	37	0	0	0	335	9,426	1,675
Other Oils > 400 Deg for Petro. Feed. Use	0	14,835	0	-177	0	0	0	748	13,909	1,934
Special Naphthas	-50	3,387	2,109	19	0	0	0	88	5,358	3,134
Lubricants	0	8,872	654	339	0	0	0	645	9,220	11,736
Waxes	0	788	87	120	0	0	0	63	657	657
Petroleum Coke	0	26,553	0	-843	0	0	0	10,449	15,261	6,324
Asphalt and Road Oil	0	13,442	22	-4,763	0	0	0	17	8,684	23,555
Still Gas	0	32,722	0	0	0	0	0	0	32,722	0
Miscellaneous Products	136	4,089	580	-114	0	0	0	55	4,636	1,923
<b>Total</b>		620,621	800,952	329,390	-10,799	28,107	56	768,720	34,705	964,790
										1,463,899

<sup>1</sup> Unaccounted for crude oil is a balancing item

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation

Table 4. Daily Average Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousand Barrels per Day)

Commodity	Field Production	Refinery Production	Imports	Stock With-Drawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>	Crude Losses	Disposition		
							Refinery Inputs	Exports	Products Supplied
<b>Crude Oil (including lease condensate)</b>									
Natural Gas Liquids and LRGs	E 8,726	0	2,952	186	487	1	12,100	185	65
Pentanes Plus	1,625	349	300	154	0	0	522	44	1,861
Liquefied Petroleum Gases	284	0	63	8	0	0	199	3	154
Ethane	1,340	349	237	146	0	0	323	41	1,708
Propane	513	29	100	6	0	0	2	6	641
Normal Butane	529	279	80	77	0	0	4	24	936
Isobutane	201	41	34	71	0	0	197	9	141
Other Liquids	98	(s)	23	-8	0	0	119	3	-10
Other Hydrocarbons and Alcohol	55	0	279	19	0	0	552	0	-199
Unfinished Oils	55	0	0	-1	0	0	54	0	0
Motor Gasoline Blending Components	0	0	220	41	0	0	369	0	-108
Aviation Gasoline Blending Components	0	0	59	-19	0	0	131	0	-91
Finished Petroleum Products	4	13,424	2,112	-1,526	0	0	0	0	(s)
Finished Motor Gasoline	3	6,317	303	-384	0	0	0	0	353
Finished Leaded Motor Gasoline	2	2,631	186	-146	0	0	0	2	6,237
Finished Unleaded Motor Gasoline	1	3,686	136	-238	0	0	0	2	2,652
Naphtha-Type Jet Fuel	0	29	(s)	-7	0	0	0	0	3,585
Kerosene-Type Jet Fuel	0	193	4	6	0	0	0	0	22
Kerosene	0	935	108	-126	0	0	0	2	200
(s)	1	151	19	-60	0	0	0	2	915
Distillate Fuel Oil	1	2,853	458	-439	0	0	0	(s)	41
Residual Fuel Oil	0	1,003	1,107	-420	0	0	0	0	2,842
Naphtha < 400 Deg. for Petro. Feed Use	0	144	40	-4	0	0	87	1,602	1,76
Other Oils > 400 Deg. for Petro. Feed Use	0	263	0	-6	0	0	5	0	12
Special Naphthas	-2	63	58	-2	0	0	0	0	246
Lubricants	0	157	11	21	0	0	0	1	116
Waxes	0	15	2	1	0	0	0	12	177
Petroleum Coke	0	448	0	-24	0	0	0	1	17
Asphalt and Road Oil	0	242	(s)	-86	0	0	0	0	186
Sulf Gas	0	545	0	0	0	0	0	0	238
Miscellaneous Products	2	56	2	3	0	0	0	1	156
<b>Total</b>	<b>10,410</b>	<b>13,774</b>	<b>5,643</b>	<b>-1,167</b>	<b>487</b>	<b>1</b>	<b>13,174</b>	<b>582</b>	<b>15,389</b>

<sup>1</sup> Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 5. Year-to-Date Daily Average Supply and Disposition of Crude Oil and Petroleum Products, January - February 1984  
(Thousand Barrels per Day)

Commodity	Field Production	Refinery Production	Supply			Crude Losses	Refinery Inputs	Disposition	
			Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>			Exports	Products Supplied
Crude Oil (including lease condensate)	E 8,691	0	2,992	-87	468	1	11,831	168	65
Natural Gas Liquids and LPGs	1,602	333	294	321	0	0	528	33	1,989
Pentanes Plus	286	0	41	8	0	0	199	1	134
Liquefied Petroleum Gases	1,315	333	254	314	0	0	329	32	1,855
Ethane	502	24	98	12	0	0	2	3	631
Propane	519	269	90	219	0	0	5	21	1,072
Normal Butane	200	40	40	70	0	0	205	7	138
Isobutane	94	(s)	26	13	0	0	117	1	14
Other Liquids	46	0	299	-97	0	0	454	0	-205
Other Hydrocarbons and Alcohol	46	0	0	-1	0	0	45	0	0
Unfinished Oils	0	0	258	-36	0	0	310	0	-88
Motor Gasoline Blending Components	0	0	42	-59	0	0	100	0	-117
Aviation Gasoline Blending Components	0	0	0	-1	0	0	-1	0	(s)
Finished Petroleum Products	5	13,016	1,905	-317	0	0	0	377	14,232
Finished Motor Gasoline	2	6,172	266	-186	0	0	0	1	6,253
2,565	1	3,606	132	-40	0	0	0	1	2,657
Finished Unleaded Motor Gasoline	1	3,606	135	-146	0	0	0	0	3,596
Finished Aviation Gasoline	0	24	(s)	-6	0	0	0	0	18
Naphtha-Type Jet Fuel	0	186	9	1	0	0	0	1	195
Kerosene-Type Jet Fuel	0	900	76	-9	0	0	0	6	961
Kerosene	0	167	18	-23	0	0	0	0	162
Distillate Fuel Oil	(s)	2,718	361	137	0	0	0	41	3,177
Residual Fuel Oil	0	977	1,083	-142	0	0	0	121	1,798
Naphtha < 400 Deg. for Petro. Feed. Use	0	128	34	1	0	0	0	6	157
Other Oils > 400 Deg. for Petro. Feed. Use	0	247	0	-3	0	0	0	12	232
Special Naphthas	-1	56	35	(s)	0	0	0	1	89
Lubricants	0	148	11	6	0	0	0	11	154
Waxes	0	13	1	2	0	0	0	1	16
Petroleum Coke	0	443	0	-14	0	0	0	174	254
Asphalt and Road Oil	0	224	(s)	-79	0	0	0	(s)	145
Still Gas	0	545	0	0	0	0	0	0	545
Miscellaneous Products	2	68	10	-2	0	0	0	1	77
Total	10,344	13,349	5,490	-180	468	1	12,812	578	16,080

<sup>1</sup> Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation

Table 6. PAD District 1, Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousand Barrels)

Commodity	Supply					Disposition				Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>	Net Receipts	Crude Losses	Refinery Inputs	Exports	
Crude Oil (including lease condensate)	E 2,132	0	24,875	1,063	-330	3,519	-1	30,660	0	0
Natural Gas Liquids and LRGs	930	1,245	1,683	19	0	2,786	0	115	37	6,511
Liquefied Petroleum Gases	822	1,245	490	31	0	2,786	0	83	37	5,253
Pentanes Plus	108	0	1,193	-12	0	0	0	32	0	1,257
Other Liquids	293	0	3,592	334	0	497	0	5,115	0	-399
Other Hydrocarbons and Alcohol	293	0	0	-26	0	0	0	267	0	0
Unfinished Oils	0	0	2,375	75	0	459	0	4,031	0	-1,122
Motor Gasoline Blending Components	0	0	1,217	272	0	38	0	805	0	12,679
Aviation Gasoline Blending Components	0	0	0	13	0	0	0	12	0	4,435
Finished Petroleum Products	64	36,533	56,839	-27,852	0	73,632	0	0	600	138,607
Finished Motor Gasoline	64	17,172	8,021	-4,056	0	38,346	0	0	23	59,514
Finished Leaded Motor Gasoline	36	6,196	4,528	-1,730	0	13,484	0	0	23	22,491
Finished Unleaded Motor Gasoline	28	10,976	3,494	-2,336	0	24,862	0	0	0	37,024
Finished Aviation Gasoline	0	12	1	4	0	175	0	0	0	31,878
Naphtha-Type Jet Fuel	0	429	106	33	0	174	0	0	192	498
Kerosene-Type Jet Fuel	0	706	3,133	-1,277	0	9,463	0	0	0	770
Kerosene	0	382	559	-1,412	0	1,111	0	0	0	8,431
Distillate Fuel Oil	0	8,985	13,034	-10,961	0	21,797	0	0	640	4,493
Residual Fuel Oil	0	4,288	30,733	-9,827	0	1,450	0	0	2	32,862
Naphtha and Other Oils for Petro. Feed	0	338	416	-191	0	-14	0	0	1	30,797
Special Naphthas	0	22	456	131	0	195	0	0	64	485
Lubricants	0	613	244	352	0	561	0	0	5	799
Waxes	0	51	6	26	0	9	0	0	70	1,700
Petroleum Coke	0	1,187	0	-202	0	0	0	0	4	88
Asphalt and Road Oil	0	725	2	-394	0	188	0	0	412	573
Still Gas	0	1,527	0	0	0	0	0	0	5	516
Miscellaneous Products	0	146	8	-78	0	177	0	0	0	1,527
Total	3,419	31,778	86,989	-26,446	-930	80,434	-1	35,890	637	144,718
										205,278

<sup>1</sup> Unaccounted for crude oil is a balancing item

(s) = Less than 500 barrels

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 7. PAD District II, Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousands Barrels)

Commodity	Field Production	Refinery Production	Imports	Supply				Disposition				Ending Stocks
				Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>	Net Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied		
Crude Oil (including lease condensate)	£ 30,366	0	14,148	-12	33,076	2,363	-7	79,528	420	0	0	73,571
Natural Gas Liquids and LRGs	8,580	2,137	5,331	1,038	0	3,064	0	4,874	543	15,043	30,650	
Liquefied Petroleum Gases	7,602	2,137	5,331	1,226	0	2,394	0	3,497	463	14,730	27,347	
Pentanes Plus	1,288	0	0	-188	0	670	0	1,377	80	313	3,303	
Other Liquids	258	0	140	234	0	0	0	1,107	0	-475	25,405	
Other Hydrocarbons and Alcohol	258	0	0	-2	0	0	0	256	0	0	131	
Unfinished Oils	0	0	132	999	0	0	0	884	0	247	16,967	
Motor Gasoline Blending Components	0	0	8	-678	0	0	0	52	0	-722	8,159	
Aviation Gasoline Blending Components	0	0	0	-85	0	0	0	-85	0	0	148	
Finished Petroleum Products	15	88,524	336	-7,657	0	16,720	0	0	227	97,711	128,085	
Finished Motor Gasoline	0	49,060	8	-4,619	0	11,654	0	0	1	56,102	60,283	
Finished Leaded Motor Gasoline	0	21,574	5	-1,568	0	6,171	0	0	1	26,182	30,824	
Finished Unleaded Motor Gasoline	0	27,486	2	-3,051	0	5,483	0	0	0	29,920	29,464	
Finished Aviation Gasoline	0	144	0	-89	0	134	0	0	0	0	662	
Naphtha-Type Jet Fuel	0	905	0	50	0	84	0	0	0	0	1,039	
Kerosene-Type Jet Fuel	0	4,747	0	-558	0	1,700	0	0	40	5,449	7,527	
Kerosene	0	993	0	-523	0	211	0	0	0	681	2,045	
Distillate Fuel Oil	0	19,098	33	97	0	2,663	0	0	4	21,887	37,049	
Residual Fuel Oil	0	2,631	195	-556	0	-187	0	0	0	0	4,180	
Naphtha and Other Oils for Petro. Feed	0	843	19	-18	0	40	0	0	4	880	172	
Special Naphthas	0	476	38	-4	0	105	0	0	18	597	504	
Lubricants	0	751	10	90	0	191	0	0	12	1,030	2,097	
Waxes	0	44	4	-10	0	0	0	0	(S)	38	67	
Petroleum Coke	0	2,941	0	-163	0	0	0	0	140	2,638	1,205	
Asphalt and Road Oil	0	2,556	3	-995	0	58	0	0	6	1,416	10,655	
Still Gas	0	3,313	0	0	0	0	0	0	0	3,313	0	
Miscellaneous Products	15	222	26	41	0	67	0	0	2	370	211	
<b>Total</b>	<b>39,529</b>	<b>90,561</b>	<b>19,555</b>	<b>-6,397</b>	<b>33,076</b>	<b>22,147</b>	<b>-7</b>	<b>85,599</b>	<b>1,190</b>	<b>112,279</b>	<b>257,711</b>	

<sup>1</sup> Unaccounted for crude oil is a balancing item.

(S) = Less than 500 barrels.

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.  
Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 8. PAD District III, Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousand Barrels)

Commodity	Supply				Disposition				Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>	Net Receipts	Crude Losses	Refinery Inputs	
Crude Oil (including lease condensate)	E 121,684	0	41,604	5,479	-11,680	10,876	6	167,935	0
Natural Gas Liquids and LRGs	33,719	5,589	571	3,066	0	-4,632	0	8,816	557
Liquified Petroleum Gases	28,960	5,589	(9)	2,648	0	-4,127	0	2,725	26,888
Pentanes Plus	5,659	0	571	418	0	-505	0	4,091	0
Other Liquids	603	0	3,841	761	0	-239	0	9,350	0
Other Hydrocarbons and Alcohol	603	0	0	-7	0	0	0	596	-4,384
Unfinished Oils	0	0	3,686	744	0	-236	0	5,270	0
Motor Gasoline Blending Components	0	0	175	22	0	-3	0	3,482	0
Aviation Gasoline Blending Components	0	0	0	2	0	0	0	2	-3,283
Finished Petroleum Products	45	186,939	3,109	-7,450	0	-93,527	0	0	0
Finished Motor Gasoline	7	83,935	466	-3,628	0	-51,797	0	0	3,848
Finished Unleaded Motor Gasoline	7	33,469	234	-1,201	0	-20,558	0	0	25
Finished Aviation Gasoline	0	50,466	231	-2,427	0	-31,239	0	0	25
Naphtha-Type Jet Fuel	0	488	0	-35	0	-327	0	0	0
Kerosene-Type Jet Fuel	0	2,468	0	188	0	-465	0	0	0
Kerosene	0	13,939	0	-264	0	-12,090	0	0	65
Distillate Fuel Oil	1	2,815	0	140	0	-1,322	0	0	0
Residual Fuel Oil	40	41,173	5	-2,095	0	-24,400	0	0	(s)
Naphtha and Other Oils for Petro. Feed	0	11,909	625	-1,101	0	-1,459	0	0	348
Special Naphthas	0	9,807	739	-30	0	-26	0	0	388
Lubricants	-50	1,231	1,169	-160	0	-300	0	0	389
Waxes	0	2,896	52	118	0	-842	0	0	18
Petroleum Coke	0	266	47	6	0	-9	0	0	221
Asphalt and Road Oil	0	5,425	0	-460	0	0	0	15	1,943
Shil Gas	0	2,383	0	-354	0	-246	0	0	15
Miscellaneous Products	0	7,181	0	0	0	0	0	0	2,413
Total	156,051	192,528	49,124	1,856	-11,680	-87,522	6	186,101	4,405
									109,845
									796,098

<sup>1</sup> Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.

Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 9. PAD District IV, Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousand Barrels)

Commodity	Supply					Disposition				Ending Stocks
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>	Net Receipts	Crude Losses	Refinery Inputs	Exports	
Crude Oil (including lease condensate)	E 16,075	0	741	-515	-4,598	0	1	11,694	0	8
<b>Natural Gas Liquids and LRGs</b>	2,688	73	573	-12	0	-1,218	0	500	(S)	1,603
Liquefied Petroleum Gases	1,844	73	501	-11	0	-1,053	0	356	(S)	998
Pentanes Plus	844	0	72	-1	0	-165	0	144	0	606
<b>Other Liquids</b>	6	0	0	-65	0	0	0	-321	0	262
Other Hydrocarbons and Alcohol	6	0	0	0	0	0	0	6	0	0
Unfinished Oils	0	0	0	55	0	0	0	-300	0	355
Motor Gasoline Blending Components	0	0	0	-120	0	0	0	-27	0	-93
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0
<b>Finished Petroleum Products</b>	6	12,017	154	-490	0	292	0	0	3	11,976
Finished Motor Gasoline	4	6,203	37	-165	0	-13	0	0	0	6,066
Finished Leaded Motor Gasoline	4	3,554	36	5	0	-145	0	0	0	3,454
Finished Unleaded Motor Gasoline	0	2,649	1	-170	0	0	0	0	0	2,612
Finished Aviation Gasoline	0	0	24	0	-13	0	18	0	0	0
Naphtha-Type Jet Fuel	0	375	0	-55	0	-155	0	0	0	29
Kerosene-Type Jet Fuel	0	664	0	-198	0	715	0	0	0	1,181
Kerosene	0	33	0	19	0	0	0	0	0	52
Distillate Fuel Oil	0	3,124	92	193	0	-273	0	0	0	3,136
Residual Fuel Oil	0	301	23	11	0	0	0	0	0	3,225
Naphtha and Other Oils for Petro. Feed	0	0	0	1	0	0	0	0	1	335
Special Naphthas	0	4	1	-3	0	0	0	0	(S)	2
Lubricants	0	26	(S)	145	0	0	0	0	1	170
Waxes	0	9	0	0	0	0	0	0	0	9
Petroleum Coke	0	275	0	-7	0	0	0	0	(S)	263
Asphalt and Road Oil	0	513	0	-419	0	0	0	0	0	94
Still Gas	0	436	0	0	0	0	0	0	0	436
Miscellaneous Products	2	30	(S)	1	0	0	0	0	0	33
<b>Total</b>	18,775	12,090	1,467	-1,082	-4,598	-926	1	11,373	3	13,849
										33,645

<sup>1</sup> Unaccounted for crude oil is a balancing item

(S) = Less than 500 barrels

E = Estimated.

Note: Total may not equal sum of components due to independent rounding.  
Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 10. PAD District V, Supply and Disposition of Crude Oil and Petroleum Products, February 1984  
(Thousand Barrels)

Commodity	Supply						Disposition			
	Field Production	Refinery Production	Imports	Stock Withdrawal (+) or Addition (-)	Unaccounted For Crude Oil <sup>1</sup>	Nat Receipts	Crude Losses	Refinery Inputs	Exports	Products Supplied
Crude Oil (including lease condensate)	E 82,784	0	4,242	-618	-1,753	-16,758	21	61,087	4,935	1,854
Natural Gas Liquids and LPGs	893	1,087	550	342	0	0	0	843	145	1,884
Liquefied Petroleum Gases	542	1,087	550	340	0	0	0	718	145	1,656
Pentanes Plus	351	0	0	2	0	0	0	125	0	228
Other Liquids	438	0	514	-715	0	-258	0	756	0	777
Other Hydrocarbons and Alcohol	438	0	0	-4	0	0	0	494	0	0
Unfinished Oils	0	0	201	-697	0	-223	0	802	0	-1,521
Motor Gasoline Blending Components	0	0	313	-34	0	-35	0	-500	0	26,514
Aviation Gasoline Blending Components	0	0	0	20	0	0	0	20	0	8,374
Finished Petroleum Products	0	65,288	800	-792	0	2,883	0	0	5,559	62,620
Finished Motor Gasoline	0	26,835	247	1,339	0	1,810	0	0	1	30,230
Finished Leaded Motor Gasoline	0	11,519	22	265	0	1,048	0	0	1	12,853
Finished Unleaded Motor Gasoline	0	15,316	225	1,074	0	762	0	0	0	17,377
Finished Aviation Gasoline	0	186	0	-74	0	0	0	0	0	10,639
Naphtha-Type Jet Fuel	0	1,411	0	-45	0	362	0	0	0	1,112
Kerosene-Type Jet Fuel	0	7,054	4	-947	0	212	0	0	0	1,728
Kerosene	0	170	(s)	32	0	0	0	0	0	5,988
Distillate Fuel Oil	0	10,688	68	45	0	213	0	0	0	202
Residual Fuel Oil	0	9,944	452	-695	0	196	0	0	849	10,166
Naphtha and Other Oils for Petro. Feed	0	805	0	-34	0	0	0	0	2,197	7,700
Special Naphthas	0	104	16	-27	0	0	0	0	0	557
Lubricants	0	331	(s)	-95	0	90	0	0	(s)	93
Waxes	0	58	3	6	0	0	0	0	37	289
Petroleum Coke	0	3,160	0	143	0	0	0	0	5	62
Asphalt and Road Oil	0	1,046	0	-331	0	0	0	0	2,428	875
Still Gas	0	3,358	0	0	0	0	0	0	1	1,973
Miscellaneous Products	0	138	9	-109	0	0	0	0	0	2,051
<b>Total</b>	<b>84,115</b>	<b>66,375</b>	<b>6,106</b>	<b>-1,783</b>	<b>-1,753</b>	<b>-14,133</b>	<b>21</b>	<b>62,686</b>	<b>10,639</b>	<b>65,582</b>
										<b>177,167</b>

<sup>1</sup> Unaccounted for crude oil is a balancing item.

(s) = Less than 500 barrels.

E = Estimated

Note. Total may not equal sum of components due to independent rounding.  
Sources and estimation procedures: See Explanatory Notes on Data Collection and Estimation.

Table 11. Production of Crude Oil (including Lease Condensate) by PAD District and State, for the Most Currently Available Month, 1 December 1983  
(thousand barrels)

PAD District	PAD District and State	Production		PAD District and State	Production	Daily Average
		Total	Daily Average			
<b>PAD District I</b>						
Florida	1,271	41	41	<b>PAD District IV</b>		
New York	E 71	E 2		Colorado	2,343	76
Pennsylvania	E 364	E 12		Montana	2,351	76
Virginia	E 4	E 0		Utah	2,446	E 79
West Virginia	261	8		Wyoming	9,607	E 310
Adjustment 2	320	10		Adjustment 2	9	(s)
<b>Total PAD District I</b>	E 2,291	E 74		<b>Total PAD District IV</b>	E 16,756	E 541
<b>PAD District II</b>						
Illinois	2,113	68		<b>PAD District V</b>		
Indiana	348	11		Alaska	2,021	65
Kansas	5,630	182		South Alaska	51,032	1,646
Kentucky	588	19		North Slope	35	1
Michigan	2,579	83		Adjustment for Alaska	53,088	1,713
Missouri	E 17	E 1		Total Alaska	19	1
Nebraska	480	15		Arizona		
North Dakota	4,153	134		California		
Ohio	E 1,238	E 40		Central Coastal		
Oklahoma	11,258	363		East Central		
South Dakota	96	3		North		
Tennessee	67	2		South		
Adjustment 2	3,766	E 121		Total California		2:13
<b>Total PAD District II</b>	E 32,333	E 1,043		Nevada	6,604	1,108
<b>PAD District III</b>				Adjustment for Arizona, California, and Nevada	34,340	4
Alabama	1,497	48		2	111	
Arkansas	E 1,601	E 52		<b>Total PAD District V</b>	58	2
Louisiana				<b>Total PAD District V</b>	87,616	2,826
Gulf Coast	E 39,095	E 1,261		<b>United States Total</b>	E 266,980	E 612
Rest of State	2,590	84				
Total Louisiana	E 41,685	E 1,345				
Mississippi		88				
New Mexico	2,714					
Northwestern						
Southeastern						
Total New Mexico						
Texas						
TRRC District 01						
TRRC District 02						
TRRC District 03						
TRRC District 04						
TRRC District 05						
TRRC District 06, excluding East Texas						
TRRC District 07B						
TRRC District 07C						
TRRC District 08						
TRRC District 08A						
TRRC District 09						
TRRC District 10						
East Texas						
Adjustment 2						
<b>Total PAD District III</b>	E 127,984	E 4,129				

1 Includes the following offshore production (thousand barrels):

Alaska: State - 1,773;  
California: Federal - 2,628, State - 3,160,  
Louisiana: Federal - E27,042, State - 2,046;  
Texas: Federal - E1,592, State- 176;

U.S. Total - E38,417.

2 These adjustments are used to reconcile the national and PADD level sums of the State data with the independently estimated U.S. and Alaskan figures shown in the Summary Statistics portion of this issue and with the PADD level figures published in a previous issue. Final data at the State, PAD District and national levels will be published without adjustments in the Petroleum Supply Annual.

(s) = Less than 500 barrels.

Source: See Explanatory Notes on Data Collection and Estimation.

- Data not available.

E = Estimated.

Table 12. Natural Gas Processing Plant Production of Petroleum Products by PAD District,<sup>1</sup> February 1984  
(Thousands Barrels)

Commodity	PAD District I		PAD District II			PAD District III			PAD			PAD Dist. IV Rocky Mtn.	PAD Dist. V West Coast	United States			
	East Coast	Appala- chian #1	Ind., Ky. #2	Okla., Kans., Mo.	Minn., Wisc., Dak.	Total	Texas Inland	Texas Gulf Coast	La., Gulf Coast	No La., Ark.	New Mexico	Total					
Natural Gas Liquids	388	542	930	1	1,836	472	6,581	8,890	18,765	2,546	7,561	687	4,160	33,719	2,688	893	47,120
Pentanes Plus	45	63	108	0	247	113	928	1,288	3,154	256	1,391	185	673	5,659	844	351	8,250
Liquefied Petroleum Gases	343	479	822	1	1,569	359	5,653	7,602	15,611	2,290	6,170	502	3,487	28,060	1,844	542	38,870
Ethane	104	152	256	0	689	4	2,349	3,042	6,342	1,042	2,784	81	1,098	11,347	217	2	14,864
Propane	151	221	372	1	565	212	2,183	2,961	5,896	962	2,078	214	1,436	10,586	1,084	399	15,842
Normal Butane	69	76	145	0	161	118	814	1,113	2,378	145	681	134	642	3,980	437	142	5,817
Isobutane	19	30	49	0	154	25	307	486	995	141	627	73	311	2,147	106	59	2,847
Finished Petroleum Products	64	0	64	0	2	0	13	15	-19	43	3	17	1	45	6	0	130
Finished Motor Gasoline	64	0	64	0	0	0	0	0	7	0	0	0	0	7	4	0	75
Finished Leaded Motor Gasoline	36	0	36	0	0	0	0	0	7	0	0	0	0	7	4	0	47
Finished Unleaded Motor Gasoline	28	0	28	0	0	0	0	0	0	0	0	0	0	0	0	0	28
Finished Aviation Gasoline	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	1
Kerosene	0	0	0	0	0	0	0	0	1	39	0	0	0	40	0	0	40
Distillate Fuel Oil	0	0	0	0	0	0	0	0	-50	0	0	0	0	-50	0	0	-50
Special Naphthas	0	0	0	0	0	0	13	15	22	4	3	17	1	47	2	0	64
Miscellaneous Products	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total Production</b>	452	542	994	1	1,838	472	6,594	8,905	18,746	2,589	7,564	704	4,161	33,764	2,694	893	47,250

<sup>1</sup> Production represents quantity of natural gas processing plant output less input to fractionating facilities.  
Source: See Explanatory Notes on Data Collection and Estimation.

Table 13. Refinery Input of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels, Except Where Noted)

Commodity	PAD District I			PAD District II			PAD District III			PAD District IV			PAD District V				
	East Coast	Appala- chan #1	Total	Appala- chan #2	Ind., Ill., Ky.	Minn., Wisc., Daks	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La. Ark.	New Mexico	Total	Rocky Mt.	West Coast	
Crude Oil (including lease condensate) .....	28,615	2,045	30,660	1,620	53,697	8,069	16,142	79,568	14,932	85,060	60,311	5,307	2,325	167,935	11,694	61,087	350,904
Pentanes Plus .....	32	0	32	0	573	48	756	1,377	861	2,390	582	194	64	4,091	144	125	5,769
Liquefied Petroleum Gases .....	25	58	83	170	2,367	202	758	3,487	568	1,634	2,282	171	70	4,725	356	718	9,379
Ethane .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Propane .....	0	0	0	0	74	0	0	74	0	3	37	0	0	40	5	8	127
Nominal Butane .....	0	58	86	1,506	175	319	2,086	283	1,176	1,209	73	44	2,785	299	490	5,718	
Isobutane .....	25	0	25	84	787	27	439	1,337	285	455	965	98	26	1,829	52	220	3,463
Other Liquids																	
Other Hydrocarbons and Alcohol .....	267	0	267	0	256	0	0	256	0	318	273	0	5	596	6	434	1,559
Unfinished Oil (net) .....	4,053	-22	4,031	21	116	-70	817	884	-114	4,402	709	132	141	5,270	-300	802	10,687
Motor Gasoline Blending Components (net) .....	792	13	805	-5	195	-63	-75	52	121	1,279	2,099	-7	-10	3,482	-27	-500	3,812
Aviation Gasoline Blending Components (net) .....	12	0	12	0	-83	0	-2	-85	0	10	-8	0	0	2	0	20	-51
Total Input to Refineries .....	33,796	2,094	35,890	1,806	57,121	8,186	18,396	85,509	16,368	95,093	66,248	5,797	2,595	186,101	11,873	62,686	382,059
<b>Crude Oil Distillation</b>																	
Gross Input (daily average) .....	1,010	71	1,081	56	1,866	281	574	2,777	522	3,016	2,095	185	81	5,899	406	2,112	12,276
Operable Capacity (daily average) .....	1,405	174	1,579	66	2,318	295	791	3,470	615	3,867	2,539	292	107	7,420	565	3,114	16,139
Operating Ratio (percent) <sup>1</sup> .....	71.9	40.4	68.4	84.6	80.5	95.3	72.5	80.0	84.9	78.0	82.5	63.3	75.7	79.5	73.2	67.8	76.1
<b>Crude Oil Qualities</b>																	
Sulfur Content, Weighted Average (percent) .....	.97	.39	.92	.55	.82	1.67	.58	.85	.80	1.09	1.00	1.35	.73	1.02	.92	1.04	.97
API Gravity, Weighted Average .....	31.27	41.01	32.03	36.96	35.77	30.90	37.93	35.74	37.97	34.61	33.08	33.94	39.33	34.41	36.11	26.05	33.10
<b>Operable Capacity (daily average)</b>																	
Operating .....	1,405	174	1,579	66	2,318	295	791	3,470	615	3,867	2,539	292	107	7,420	555	3,114	16,139
Idle .....	1,197	94	1,291	66	2,110	235	714	3,185	575	3,538	2,363	204	107	6,786	479	2,762	14,503
	208	80	289	0	208	0	77	285	41	328	176	88	0	633	76	353	1,636

<sup>1</sup> Represents gross input divided by operable capacity.

Note: Total may not equal sum of components due to independent rounding.  
Source: See Explanatory Notes on Data Collection and Estimation.

**Table 14. Refinery Production of Petroleum Products by PAD District, February 1984**  
(Thousands Barrels)

Commodity	PAD District I		PAD District II		PAD District III		PAD District IV		PAD		United States						
	East Coast	Appalachian Coast #1	Appalachian Total	Ind., Ill., Ky. #2	Minn., Wisc., Dakts.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Dist. V Rocky Mt.	Dist. VI West Coast		
Liquefied Refinery Gases	1,224	21	1,245	37	1,670	199	231	2,137	204	2,650	2,561	76	98	5,589	73	1,087	10,131
For Petrochemical Feedstock Use	459	0	459	0	174	-15	40	52	1,479	1,615	6	0	3,152	6	211	4,027	
For Other Uses	765	21	786	37	1,496	214	191	1,938	152	1,171	945	70	98	2,437	67	876	6,104
Ethane	12	0	12	0	0	0	0	0	0	824	13	0	1	838	0	0	850
For Petrochemical Feedstock Use	0	0	0	0	0	0	0	0	0	432	0	0	0	432	0	0	432
For Other Uses	12	0	12	0	0	0	0	0	0	0	0	1	406	0	0	418	
Propane	1,033	21	1,054	37	1,651	214	437	2,339	202	2,264	1,137	56	61	3,720	135	844	8,089
For Petrochemical Feedstock Use	378	0	378	0	170	0	40	210	52	1,087	104	0	0	1,243	0	150	1,981
For Other Uses	655	21	676	37	1,481	214	397	2,129	150	1,177	1,083	56	61	2,477	135	691	6,108
Normal Butane	179	0	179	0	15	-15	-206	2	-417	1,411	20	36	1,052	-68	243	1,200	
For Petrochemical Feedstock Use	81	0	81	0	0	-15	0	-15	0	-19	1,511	6	0	1,498	0	58	1,622
For Other Uses	98	0	98	0	15	0	-206	-191	2	-398	-100	14	36	-446	-68	185	-422
Isobutane for Petro. Feed. Use	0	0	0	0	4	0	0	4	-21	0	0	0	-21	6	3	-3	-3
Finished Motor Gasoline	16,297	875	17,172	1,056	31,944	4,660	11,400	49,060	8,319	42,089	30,506	2,003	1,018	83,935	6,203	26,835	183,205
Finished Leaded Motor Gasoline	5,806	390	6,196	488	12,501	2,397	6,188	21,574	4,127	15,697	12,150	966	529	33,469	3,554	11,519	76,312
Finished Unleaded Motor Gasoline	10,491	485	10,976	568	19,443	2,263	5,212	27,486	4,192	26,392	18,356	1,037	489	50,466	2,649	15,316	106,893
Finished Aviation Gasoline	403	25	429	62	406	96	341	905	729	729	380	79	0	488	24	186	854
Naphtha-Type Jet Fuel	706	0	706	12	3,682	447	606	4,747	950	5,390	7,539	5	55	13,939	684	7,054	27,110
Kerosene	335	47	382	89	813	55	36	993	60	1,421	1,156	101	77	2,815	33	170	4,393
Distillate Fuel Oil	8,383	552	8,935	379	11,503	2,089	5,127	19,088	3,507	21,416	13,978	1,571	701	41,173	3,124	10,688	83,016
Residual Fuel Oil	4,146	142	4,288	66	1,928	249	388	2,681	656	7,914	3,034	293	12	11,909	301	9,944	29,073
Naphtha < 400 Deg. For Petro. Feed. Use	333	0	333	0	649	0	71	720	518	2,186	145	40	0	2,889	0	228	4,170
Other Oils > 400 Deg. For Petro. Feed. Use	5	0	5	0	123	0	0	123	115	4,256	2,547	0	0	6,918	0	57	7,623
Special Naphthas	5	17	22	0	269	0	207	476	35	1,010	71	115	0	1,231	4	104	1,837
Lubricants	364	249	613	0	373	0	378	751	49	1,642	775	370	0	2,836	26	331	4,557
Waxes	10	41	51	0	14	0	30	44	4	119	83	60	0	266	9	58	428
Petroleum Coke	1,171	16	1,187	25	1,883	502	531	2,941	265	2,560	2,473	117	10	5,425	275	3,160	12,998
Marketable	452	0	452	0	972	386	356	1,714	59	1,314	1,850	101	0	3,324	147	2,390	8,027
Catalyst	719	16	735	25	911	116	175	1,227	206	1,246	623	16	10	2,101	128	770	4,961
Asphalt and Road Oil	713	12	725	79	1,487	245	545	2,356	427	471	638	93	2,383	513	1,046	7,023	
Still Gas	1,453	74	1,527	51	2,210	315	737	3,313	410	4,142	2,391	192	46	7,181	436	3,358	15,815
For Petrochemical Feedstock Use	158	0	158	0	158	0	4	0	4	502	104	0	0	611	32	96	901
For Other Uses	1,295	74	1,369	51	2,206	315	737	3,309	405	3,640	2,287	192	46	6,570	404	3,262	14,914
Miscellaneous Products	89	57	146	2	151	29	40	222	27	758	257	41	0	1,083	30	138	1,619
Fuel Use	-16	22	6	0	1	0	5	6	0	25	195	0	0	220	3	11	246
Non-Fuel Use	105	35	140	2	150	29	35	216	27	733	62	41	0	863	27	127	1,373
<b>Total Production</b>	<b>35,649</b>	<b>2,129</b>	<b>37,778</b>	<b>1,858</b>	<b>59,240</b>	<b>8,886</b>	<b>20,677</b>	<b>90,661</b>	<b>16,390</b>	<b>99,047</b>	<b>68,623</b>	<b>5,887</b>	<b>2,581</b>	<b>192,528</b>	<b>12,090</b>	<b>65,375</b>	<b>399,432</b>
<b>Processing Gain(-) or Loss(+) 1</b>	<b>-1,853</b>	<b>-35</b>	<b>-1,888</b>	<b>-52</b>	<b>-2,119</b>	<b>-700</b>	<b>-2,281</b>	<b>-5,152</b>	<b>-22</b>	<b>-3,954</b>	<b>-2,375</b>	<b>-90</b>	<b>14</b>	<b>-6,427</b>	<b>-217</b>	<b>-3,689</b>	<b>-17,373</b>

1 Represents the arithmetic difference between input and output.

Note: See Explanatory Note 2.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 15. Percent Refinery Yield of Petroleum Products by PAD District, February 1984

Commodity	PAD District I		PAD District II		PAD District III		PAD District IV		PAD District V		United States									
	East Coast	Appalachian #1	Appalachian #2	Ind., Ill., Ky.	Minn., Wis., Dak.	Okla., Kans., Mo.	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Dist. Rocky Mt.	Dist. West Coast	United States					
Finished Motor Gasoline <sup>2</sup>	46.5	39.7	46.1	54.3	53.1	55.9	58.7	54.6	45.7	40.8	41.4	30.2	36.1	41.0	50.2	42.1	45.0			
Finished Aviation Gasoline <sup>3</sup>	.0	.0	.0	.4	.0	.1	.3	.8	.3	.1	.0	.0	.0	.3	.2	.3	.3			
Liquefied Refinery Gases	3.7	1.0	3.6	2.3	3.1	2.5	1.4	2.7	1.4	3.0	4.2	1.4	4.0	3.2	.6	1.8	2.8			
Naphtha-Type Jet Fuel	1.2	1.3	1.2	3.8	.8	1.2	2.0	1.1	4.9	.8	.6	2.7	19.1	1.4	3.3	2.3	1.5			
Kerosene-Type Jet Fuel	2.2	0	2.0	.7	6.8	5.6	3.6	5.9	6.4	6.0	12.4	1	2.2	8.0	5.8	11.4	7.5			
Kerosene	1.0	2.3	1.1	5.4	1.5	7	.2	1.2	.4	1.6	1.9	1.9	3.1	1.6	3	1.3	1.2			
Distillate Fuel Oil	25.7	27.3	25.8	23.1	21.4	26.1	30.2	23.8	23.7	23.9	22.9	28.4	23.8	27.4	17.3	23.0	23.0			
Residual Fuel Oil	12.7	7.0	12.4	4.0	3.6	3.1	2.3	3.3	4.4	8.8	5.0	5.4	5	6.9	2.6	16.1	8.0			
Naphtha < 400 Deg F. Petro. Feed. Use	1.0	0	1.0	0	1.2	0	.4	.9	3.5	2.4	2	.7	0	1.7	0	.4	1.2			
Other Oils > 400 Deg. F. Petro. Feed. Use	.0	0	0	0	.2	0	0	.2	.8	4.8	4.2	0	0	4.0	0	.9	2.1			
Special Naphthas	.0	.8	.1	0	5	0	1.2	.6	2	1.1	2.1	0	0	7	0	0	2			
Lubricants	1.1	12.3	1.8	0	.7	0	2.2	.9	3	1.8	1.3	6.8	0	1.6	.2	5	1.3			
Waxes	.0	2.0	.1	0	.0	.0	.2	.1	0	.1	.1	1.1	0	2	1	1	1			
Petroleum Coke	3.6	.8	3.4	1.5	3.5	6.3	3.1	3.7	1.8	2.9	4.1	2.2	4	3.1	2.4	5.1	3.6			
Asphalt and Road Oil	2.2	.6	2.1	4.8	2.8	3.1	3.2	2.9	5	1.0	13.9	38	1.4	4.5	1.7	1.9	1.9			
Still Gas	4.4	3.7	4.4	3.1	4.1	3.9	4.3	4.1	2.8	4.6	3.9	3.5	19	4.1	3.8	5.4	4.4			
Miscellaneous Products	.3	2.8	4	.1	.3	4	.2	.3	.2	8	4	.8	0	6	.3	.2	.4			
Processing Gain() or Loss(+) <sup>4</sup>	....	....	....	-5.7	-1.7	-5.4	-3.2	-3.9	-8.8	-13.5	-6.4	-1	-4.4	-3.9	-1.7	6	-3.7	-1.9	-6.0	-4.8

<sup>1</sup> Based on crude oil input and net returns of unfinished oils.<sup>2</sup> Based on total finished motor gasoline output plus net output of motor gasoline blending components.<sup>3</sup> Based on total finished natural gas plant liquids, other hydrocarbons and alcohol.<sup>4</sup> Represents the difference between input and production.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 16. Imports of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels)

Commodity	Petroleum Administration for Defense Districts					Total
	I	II	III	IV	V	
Crude Oil (including lease condensate) 1,2	24,875	14,148	41,604	741	4,242	85,609
Natural Gas Liquids						
Pentanes Plus	1,683	5,331	571	573	550	8,706
Liquified Petroleum Gases	1,193	0	571	72	0	1,835
Ethane	490	5,381	(S)	501	550	6,671
Propane	0	2,912	0	0	0	2,912
Normal Butane	434	1,541	(S)	237	110	2,322
Isobutane	33	527	0	159	264	982
	22	351	0	106	176	655
Other Liquids 1						
Unfinished Oils 1	3,592	140	3,841	0	514	8,087
Motor Gasoline Blending Components	2,375	132	3,666	0	201	6,374
Aviation Gasoline Blending Components	1,217	8	175	0	313	1,713
	0	0	0	0	0	0
Finished Petroleum Products						
Finished Motor Gasoline	56,839	336	3,109	154	800	61,239
Finished Leaded Motor Gasoline	8,021	8	466	37	247	8,779
Finished Unleaded Motor Gasoline	4,528	5	234	36	22	4,825
Finished Aviation Gasoline	3,494	2	231	1	225	3,954
Naphtha-Type Jet Fuel	1	0	0	0	0	1
Kerosene-Type Jet Fuel	106	0	0	0	0	106
Bonded Aircraft Fuel	3,133	0	0	0	4	3,138
Other	3,133	0	0	0	0	0
Kerosene	559	0	0	0	(S)	560
Distillate Fuel Oil	13,094	33	5	92	68	13,292
Bonded Ships Bunkers	0	0	0	0	0	0
Other	13,094	33	5	92	68	13,292
Residual Fuel Oil	30,793	195	625	23	452	32,089
Bonded Ships Bunkers	0	0	0	0	0	0
Other	30,793	195	625	23	452	32,089
Naphtha < 400 Deg. for Petro. Feed. Use	416	19	739	0	0	1,174
Other Oils > 400 Deg. for Petro. Feed. Use	0	0	0	0	0	0
Special Naphthas	456	38	1,169	1	16	1,681
Lubricants	244	10	52	(S)	(S)	306
Waxes	6	4	47	0	3	60
Asphalt and Road Oil	2	3	0	0	0	5
Miscellaneous Products	8	26	6	(S)	9	50
	85,989	19,955	49,124	1,467	6,106	163,641
<b>Total Imports</b>						

1 Crude oil and unfinished oils are reported by the PAD District in which they are to be processed; all other products are reported by the PAD District of entry.

2 Includes crude oil imported for storage in the Strategic Petroleum Reserve.

(S) = Less than 500 barrels

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984  
(Thousand Barrels)

Source	Crude Oil 1	LPG	Unfinished Oils	Gasoline Blending Components	Finished Motor Gasoline	Jet Fuel	Kerosene	Distil. Fuel Oil	Resid. Fuel Oil	Special Napthas	Other Products 2	Total Products	Total Petroleum	Total (Daily Average)	
All PAD Districts															
Arab OPEC															
Algeria	6,053	0	0	0	283	282	0	681	1,374	848	571	4,038	10,091	348	
Iraq	1	0	0	0	0	0	0	0	0	0	0	0	0	(s)	
Kuwait	1	0	0	0	0	0	0	0	524	0	0	524	525	18	
Saudi Arabia	9,240	163	0	0	0	0	0	0	0	0	0	163	9,403	324	
United Arab Emirates	519	0	0	0	0	0	0	0	434	0	0	434	953	33	
<b>Subtotal Arab OPEC</b>	<b>15,814</b>	<b>163</b>	<b>0</b>	<b>283</b>	<b>282</b>	<b>0</b>	<b>681</b>	<b>2,332</b>	<b>848</b>	<b>571</b>	<b>5,159</b>	<b>20,973</b>	<b>723</b>		
Other OPEC															
Ecuador	3,234	0	0	0	0	0	0	0	118	0	0	118	3,352	116	
Gabon	871	0	0	0	0	0	0	0	246	60	0	306	1,177	41	
Indonesia	7,293	0	0	0	138	0	0	61	244	0	0	442	7,735	267	
Nigeria	6,925	0	0	0	0	0	0	53	90	0	0	143	7,068	244	
Venezuela	6,122	0	221	175	891	128	0	1,413	5,008	0	(s)	7,836	13,958	481	
<b>Subtotal Other OPEC</b>	<b>24,445</b>	<b>0</b>	<b>221</b>	<b>175</b>	<b>1,028</b>	<b>128</b>	<b>0</b>	<b>1,527</b>	<b>5,706</b>	<b>60</b>	<b>(s)</b>	<b>8,846</b>	<b>33,290</b>	<b>1,148</b>	
Other															
Angola	1,472	0	0	0	0	0	0	0	268	0	0	268	1,740	60	
Australia	666	0	0	0	0	0	0	0	0	0	51	51	717	25	
Bahamas	0	0	1,332	0	0	122	69	729	1,305	0	570	4,126	4,126	142	
Brazil	0	0	0	0	705	0	0	0	279	50	0	1,034	1,034	36	
Brunei	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Canada	8,608	6,612	139	8	285	0	6	1,228	711	66	315	8,714	17,977	620	
Congo	0	0	0	0	0	0	0	0	190	0	0	190	190	7	
France	0	0	0	0	0	0	0	0	0	0	9	9	9	(s)	
Liberia	0	0	0	0	0	0	0	0	198	0	0	198	198	7	
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Mexico	18,997	5	1,481	305	(s)	184	0	387	307	0	8	2,677	21,674	747	
Netherlands	549	(s)	0	0	1,168	196	0	4,345	748	36	66	6,559	7,108	245	
Netherlands Antilles	0	0	1,667	0	680	150	0	0	5,838	0	4	8,339	8,339	288	
Norway	—	1,699	(s)	0	0	0	0	130	0	0	0	130	1,829	63	
Oman	496	0	0	0	0	0	0	0	585	0	0	585	1,081	37	
People's Republic of China	14	0	201	313	0	0	0	0	0	0	0	514	529	18	
Peru	0	0	0	0	0	0	0	0	905	0	0	906	906	31	
Puerto Rico	0	412	0	251	0	0	0	208	0	594	231	1,696	1,696	58	
Romania	0	0	913	243	0	0	0	0	0	0	1,055	2,211	2,211	76	
Spain	0	0	0	204	825	0	123	409	0	0	0	1,562	1,562	54	
Trinidad and Tobago	1,647	0	0	0	0	0	0	0	585	0	0	585	2,232	77	
United Kingdom	8,040	91	255	0	395	154	0	163	526	0	187	1,771	9,811	338	
Virgin Islands	0	0	288	0	1,987	572	425	2,523	6,240	0	75	12,110	12,110	418	
Zaire	395	0	0	0	0	0	0	0	0	0	0	0	0	14	
Other Western Hemisphere	140	0	196	0	0	0	0	0	32	2,034	11	40	2,312	2,452	
Other Eastern Hemisphere	2,627	(s)	182	0	1,548	631	60	1,217	2,922	15	251	6,825	9,453	326	
Subtotal Other	45,351	6,707	6,153	1,538	7,468	2,834	580	11,083	24,051	772	2,860	63,372	109,377	3,772	
<b>Total Imports</b>	<b>85,609</b>	<b>6,871</b>	<b>6,374</b>	<b>1,713</b>	<b>8,779</b>	<b>3,244</b>	<b>560</b>	<b>13,292</b>	<b>32,089</b>	<b>1,681</b>	<b>3,431</b>	<b>77,376</b>	<b>163,641</b>	<b>5,643</b>	

See footnotes at end of table.

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984  
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin-ished Oils	Gasoline Blending Components	Finished Motor Gasoline	Jet Fuel	Kero-sane	Distil Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Prod-ucts 2	Total Prod-ucts	Total Petro-lem	Total (Daily Average)
PAD District I														
<b>Arab OPEC</b>														
Algeria .....	1,719	0	0	283	282	0	681	1,374	0	0	2,620	4,339	150	
Kuwait .....	1	0	0	0	0	0	0	0	0	0	0	0	0	(s)
Saudi Arabia .....	2,627	163	0	0	0	0	0	0	0	0	163	2,790	96	
United Arab Emirates .....	0	0	0	0	0	0	0	434	0	0	434	434	15	
<b>Subtotal Arab OPEC .....</b>	<b>4,348</b>	<b>163</b>	<b>0</b>	<b>283</b>	<b>282</b>	<b>0</b>	<b>681</b>	<b>1,368</b>	<b>0</b>	<b>0</b>	<b>3,217</b>	<b>7,564</b>	<b>261</b>	
<b>Other OPEC</b>														
Ecuador .....	0	0	0	0	0	0	0	0	118	0	0	118	118	4
Gabon .....	0	0	0	0	0	0	0	246	60	0	306	306	11	
Indonesia .....	4,048	0	0	0	0	0	0	0	0	0	0	4,048	140	
Nigeria .....	2,383	0	0	0	0	0	0	50	90	0	140	2,524	87	
Venezuela .....	1,561	0	0	0	659	128	0	1,413	5,008	0	(s)	7,209	8,759	302
<b>Subtotal Other OPEC .....</b>	<b>7,992</b>	<b>0</b>	<b>0</b>	<b>659</b>	<b>128</b>	<b>0</b>	<b>1,464</b>	<b>5,462</b>	<b>60</b>	<b>(s)</b>	<b>7,773</b>	<b>15,766</b>	<b>544</b>	
<b>Other</b>														
Angola .....	917	0	0	0	0	0	0	0	268	0	0	268	1,184	41
Australia .....	0	0	0	0	0	0	0	0	0	0	0	0	0	
Bahamas .....	0	0	0	0	122	69	729	1,305	0	180	2,404	2,404	83	
Brazil .....	0	0	0	0	471	0	0	279	0	0	750	750	26	
Canada .....	870	235	7	0	240	0	6	1,103	492	11	172	2,244	3,136	108
Congo .....	0	0	0	0	0	0	0	0	190	0	0	190	190	7
France .....	0	0	0	0	0	0	0	0	0	0	(s)	(s)	(s)	(s)
Liberia .....	0	0	0	0	0	0	0	0	198	0	0	198	198	7
Mexico .....	2,092	0	0	305	0	184	0	384	300	0	0	1,172	3,265	113
Netherlands .....	0	0	0	1,408	0	1,683	196	0	4,345	748	0	6,458	6,458	223
Netherlands Antilles .....	0	0	0	0	680	150	0	0	5,838	0	4	8,080	8,080	279
Norway .....	1,699	0	0	0	0	0	0	130	0	0	0	130	1,829	63
Oman .....	496	0	0	0	0	0	0	0	585	0	0	585	1,081	37
People's Republic of China .....	14	0	0	0	0	0	0	0	0	0	0	0	0	(s)
Peru .....	0	0	0	0	0	0	0	0	805	0	0	805	805	28
Puerto Rico .....	0	0	0	4,122	0	251	0	0	208	0	370	231	1,472	51
Romania .....	0	0	0	0	913	243	0	0	0	0	1,055	2,211	2,211	76
Spain .....	0	0	0	0	0	204	825	0	123	409	0	0	1,562	54
Trinidad and Tobago .....	451	0	0	0	0	0	0	0	0	585	0	585	1,036	36
United Kingdom .....	4,157	91	255	0	395	154	0	0	163	526	0	(s)	1,584	1,741
Virgin Islands .....	0	0	288	0	1,987	572	425	2,523	6,240	0	0	12,035	12,035	415
Zaire .....	395	0	0	0	0	0	0	0	0	0	0	0	0	0
<b>Other Western Hemisphere .....</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>32</b>	<b>2,034</b>	<b>0</b>	<b>(s)</b>	<b>2,066</b>	<b>71</b>
<b>Other Eastern Hemisphere .....</b>	<b>1,444</b>	<b>(s)</b>	<b>4</b>	<b>0</b>	<b>1,439</b>	<b>627</b>	<b>60</b>	<b>1,210</b>	<b>2,721</b>	<b>15</b>	<b>228</b>	<b>6,305</b>	<b>7,748</b>	<b>267</b>
<b>Subtotal Other .....</b>	<b>12,535</b>	<b>326</b>	<b>2,375</b>	<b>1,217</b>	<b>7,079</b>	<b>2,829</b>	<b>559</b>	<b>10,949</b>	<b>23,524</b>	<b>396</b>	<b>1,869</b>	<b>51,101</b>	<b>63,659</b>	<b>2,195</b>
<b>Total Imports .....</b>	<b>24,875</b>	<b>490</b>	<b>2,375</b>	<b>1,217</b>	<b>8,021</b>	<b>3,239</b>	<b>559</b>	<b>13,054</b>	<b>30,793</b>	<b>456</b>	<b>1,869</b>	<b>62,091</b>	<b>86,989</b>	<b>3,000</b>
PAD District II														
<b>Arab OPEC</b>														
Algeria .....	1,209	0	0	0	0	0	0	0	0	0	0	0	0	1,209
Saudi Arabia .....	423	0	0	0	0	0	0	0	0	0	0	0	0	423
United Arab Emirates .....	519	0	0	0	0	0	0	0	0	0	0	0	0	15
<b>Subtotal Arab OPEC .....</b>	<b>2,151</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>2,151</b>

See footnotes at end of table

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984  
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin- ished Oils	Gasoline Blending Com- ponents	Finished Motor Gasoline	Jet Fuel	Kero- seene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphtha	Other Prod- ucts 2	Total Prod- ucts	Total Petro- leum	Total (Daily Average)
PAD District II														
Other														
Canada	6,670	5,331	132	8	8	0	0	33	195	38	61	5,455	12,476	430
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	3,898	0	0	0	0	0	0	0	0	0	0	3,898	134	134
Netherlands	549	0	0	0	0	0	0	0	0	0	0	549	19	19
Trinidad and Tobago	729	0	0	0	0	0	0	0	0	0	0	729	25	25
United Kingdom	152	0	0	0	0	0	0	0	0	0	1	152	5	5
Other Western Hemisphere	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other Eastern Hemisphere	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Other	11,997	5,331	132	8	8	0	0	33	195	38	62	5,455	17,804	614
<b>Total Imports</b>	<b>14,148</b>	<b>5,331</b>	<b>132</b>	<b>8</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>33</b>	<b>195</b>	<b>38</b>	<b>62</b>	<b>5,455</b>	<b>19,955</b>	<b>688</b>
PAD District III														
Arab OPEC														
Iraq	2,712	0	0	0	0	0	0	0	0	848	571	1,419	4,131	142
Iraq	1	0	0	0	0	0	0	0	0	0	0	1	1	1
Kuwait	0	0	0	0	0	0	0	524	0	0	524	524	18	18
Saudi Arabia	6,190	0	0	0	0	0	0	0	0	0	0	6,190	233	233
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Arab OPEC	8,902	0	0	0	0	0	0	524	848	571	1,943	10,845	374	374
Other OPEC														
Ecuador	3,234	0	0	0	0	0	0	0	0	0	0	0	3,234	112
Gabon	871	0	0	0	0	0	0	0	0	0	0	871	871	80
Indonesia	409	0	0	0	0	0	0	0	0	0	0	409	409	14
Nigeria	4,541	0	0	0	0	0	0	0	0	0	0	3	4,545	157
Venezuela	4,562	0	221	0	0	0	0	0	0	0	0	627	5,189	179
Subtotal Other OPEC	13,617	0	221	175	231	231	0	3	0	0	0	630	14,247	491
Other														
Angola	556	0	0	0	0	0	0	0	0	0	0	51	51	19
Australia	0	0	0	0	0	0	0	0	0	0	0	391	1,722	59
Bahamas	0	0	1,332	0	0	0	0	0	0	0	0	285	285	10
Brazil	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada	(s)	0	0	0	0	0	0	0	0	0	0	0	0	0
France	0	0	0	0	0	0	0	0	0	0	0	8	8	8
Mexico	13,007	0	1,481	0	0	0	0	0	0	0	0	5	1,488	14,495
Netherlands	0	0	0	0	0	0	0	0	0	0	0	36	66	102
Netherlands Antilles	0	0	259	0	0	0	0	0	0	0	0	259	259	9
Norway	0	(s)	0	0	0	0	0	0	0	0	0	0	0	0
Other														
Peru	0	0	0	0	0	0	0	0	0	0	0	101	101	3
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	224	224	8
Romania	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Spain	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trinidad and Tobago	467	0	0	0	0	0	0	0	0	0	0	467	467	16
United Kingdom	3,731	0	0	0	0	0	0	0	0	0	0	186	186	135

See footnotes at end of table.

Table 17. Imports of Crude Oil and Petroleum Products by Source and PAD District, February 1984  
(Thousand Barrels) (continued)

Source	Crude Oil 1	LPG	Unfin-ished Oils	Gasoline Blending Components	Finished Motor Gasoline	Jet Fuel	Karo-sene	Distil. Fuel Oil	Resid. Fuel Oil	Special Naphthas	Other Products 2	Total Products	Total Petroleum	Total (Daily Average)
PAD District III														
Other														
Virgin Islands .....	0	0	0	0	0	0	0	0	0	0	0	75	75	75
Other Western Hemisphere .....	140	0	196	0	0	0	0	0	0	11	40	247	387	3
Other Eastern Hemisphere .....	1,184	0	177	0	0	0	0	0	0	0	22	200	1,383	13
Subtotal Other .....	19,085	(\$)	3,445	0	234	0	0	2	101	321	844	4,947	24,032	48
Total Imports .....	41,604	(\$)	3,666	175	466	0	0	5	625	1,169	1,415	7,520	49,124	829
PAD District IV														
Other														
Canada .....	741	501	0	0	37	0	0	92	23	1	72	621	1,467	51
Subtotal Other .....	741	501	0	0	37	0	0	92	23	1	72	621	1,467	51
Total Imports .....	741	501	0	0	37	0	0	92	23	1	72	621	1,467	51
PAD District V														
Arab OPEC														
Algeria .....	413	0	0	0	0	0	0	0	0	0	0	0	0	413
Subtotal Arab OPEC .....	413	0	0	0	0	0	0	0	0	0	0	0	0	14
Other OPEC														
Indonesia .....	2,836	0	0	0	0	138	0	0	61	244	0	0	3,277	113
Venezuela .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal Other OPEC .....	2,836	0	0	0	138	0	0	61	244	0	0	442	3,277	113
Other														
Australia .....	666	0	0	0	0	0	0	0	0	0	0	0	666	23
Brunei .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Canada .....	327	545	0	0	0	0	0	0	0	0	0	16	9	395
France .....	0	0	0	0	0	0	0	0	0	0	0	0	0	31
Malaysia .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico .....	0	5	0	0	0	0	0	0	0	0	0	0	0	0
Netherlands .....	0	0	0	0	0	0	0	0	1	7	0	3	17	1
Netherlands Antilles .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0
People's Republic of China .....	0	0	201	313	0	0	0	0	0	0	0	0	0	0
United Kingdom .....	0	0	0	0	0	0	0	0	0	0	0	514	514	18
Other Eastern Hemisphere .....	0	0	0	0	109	4	0	0	0	0	0	0	0	0
Subtotal Other .....	993	550	201	313	109	4	0	6	201	0	0	16	321	11
Total Imports .....	4,242	550	201	313	247	4	(\$)	68	452	16	13	1,247	2,415	83

1 Includes crude oil imported for storage in the Strategic Petroleum Reserve.

2 Includes aviation gasoline, waxes, asphalt, lubricants, pentanes plus, naphthas less than 400 degrees F, other oils greater than 400 degrees F and miscellaneous products.

(S) = Less than 500 barrels or less than 500 barrels per day.

Note: Total may not equal sum of components due to independent rounding.

Sources: See Explanatory Notes on Data Collection and Estimation.

**Table 18. Exports of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels)**

Commodity	Petroleum Administration for Defense Districts					
	I	II	III	IV	V	Total
Crude Oil (including lease condensate) 1	0	420	0	0	4,935	5,355
Natural Gas Liquids	37	543	557	(s)	145	1,282
Pentanes Plus	0	80	0	0	0	80
Liquefied Petroleum Gases	37	483	557	(s)	145	1,202
Ethane	0	160	0	0	0	160
Propane	19	134	497	(s)	58	708
Normal Butane	18	89	60	(s)	87	254
Isobutane	0	80	0	0	0	80
Finished Motor Gasoline	23	1	25	0	1	50
Naphtha-Type Jet Fuel	0	0	63	0	0	63
Kerosene-Type Jet Fuel	0	40	0	0	28	68
Kerosene	(s)	0	(s)	0	0	1
Distillate Fuel Oil	2	4	348	0	849	1,203
Residual Fuel Oil	1	0	338	0	2,197	2,536
Naphtha < 400 Deg. for Petrochem. Feedstock	64	4	63	1	0	141
Other Oils > 400 Deg. for Petrochem. Feedstock	0	0	336	0	2	337
Special Naphthas	5	18	18	(s)	(s)	42
Lubricants	70	12	221	1	37	342
Waxes	4	(s)	15	0	5	23
Petroleum Coke	412	140	2,413	(s)	2,428	5,394
Asphalt	5	8	(s)	(s)	1	12
Miscellaneous Products	13	2	8	0	3	24
Total Product Exports	637	770	4,405	3	5,704	11,518
Total Exports	637	1,190	4,405	3	10,639	16,874

1 Exports of crude oil are prohibited by law. However, some crude oil is exchanged with Canada on a barrel for barrel basis, and crude oil is shipped to U.S. Territories (especially Puerto Rico and the Virgin Islands) to be refined there. The Statistical Tracking Systems count these exchanges and shipments as imports and exports.

(s) = Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

Table 19. Exports of Crude Oil and Petroleum Products by Destination, February 1984  
(Thousand Barrels)

Destination	Crude Oil <sup>1</sup>	LPG <sup>2</sup>	Finished Motor Gasoline	Jet Fuel	Dist. Fuel Oil	Residual Fuel Oil	Special Naphthas	Lubri- cants	Waxes	Petro- leum Coke	Asphalt	Other <sup>3</sup>	Total	Total (Daily Average)
Argentina	0	0	0	0	0	0	0	0	6	0	0	0	6	(9)
Australia	0	0	(9)	8	0	0	0	3	2	0	122	(3)	5	133
Bahamas	0	0	0	1	0	0	(9)	0	0	0	0	(5)	0	846
Bahrain	0	0	0	0	0	0	(9)	0	0	64	0	0	64	29
Belgium & Luxembourg	0	0	0	0	0	0	(9)	3	(9)	521	(8)	0	524	18
Brazil	0	0	0	0	0	0	(9)	0	0	0	0	1	1	(9)
Cameroun	0	0	0	0	0	0	(9)	0	0	0	0	0	0	(9)
Canada	420	468	23	40	233	11	19	34	2	410	8	105	1,773	61
Chile	0	0	0	0	0	0	0	0	20	0	(9)	0	20	1
China (Taiwan)	0	0	0	0	0	0	0	0	7	(9)	(9)	1	8	(9)
Colombia	0	0	2	0	0	0	0	5	0	0	0	0	8	(9)
Costa Rica	0	0	20	0	0	0	0	2	6	(9)	0	0	1	1
Denmark	0	0	0	0	0	0	0	0	0	0	317	0	0	317
Dominican Republic	0	0	36	25	0	0	0	1	0	0	0	0	37	1
Ecuador	0	0	128	25	0	0	0	1	0	0	0	0	155	5
Egypt	0	0	0	0	0	0	0	0	0	0	0	0	0	(9)
El Salvador	0	0	0	0	0	0	0	0	0	0	0	0	0	(9)
Finland	0	0	38	0	0	0	0	0	0	0	0	0	0	0
France	0	0	0	0	0	0	0	0	0	0	0	0	0	0
French Pacific Isl.	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ghana	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greece	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Guatemala	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Guinea	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Honduras	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Hong Kong	0	0	0	0	0	0	0	0	0	0	0	0	0	0
India	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Indonesia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Iran	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Israel	0	0	104	0	0	0	0	0	0	0	0	0	0	0
Italy	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Ivory Coast	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jamaica	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Japan	0	0	3	0	0	0	0	0	10	3	910	(8)	0	21
Jordan	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Korea, Republic of	0	0	0	0	0	0	0	0	1	0	0	0	0	0
Kuwait	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Liberia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Malaysia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mexico	0	0	318	1	28	(8)	0	0	1	97	10	54	0	7
Netherlands	0	0	0	0	0	0	0	0	0	0	0	0	0	0
New Zealand	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nicaragua	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Nigeria	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Norway	0	1	0	0	0	0	0	0	0	0	0	0	0	(9)
Panama	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peru	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Philippines	0	0	12	0	0	0	(9)	0	0	0	0	0	0	0
Puerto Rico	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rep. of South Africa	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Saudi Arabia	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Singapore	0	0	0	19	0	(9)	0	0	0	0	0	0	0	0

See footnotes at end of table.

Table 19. Exports of Crude Oil and Petroleum Products by Destination, February 1984  
(Thousands Barrels)  
(continued)

Destination	Crude Oil <sup>1</sup>	LPG	Finished Motor Gasoline	Jet Fuel	Dist. Fuel Oil	Residual Fuel Oil	Special Naphtha	Lubricants	Waxes	Petroleum Coke	Asphalt	Other <sup>2</sup>	Total	Total (Daily Average)
Spain	0	0	0	0	0	0	0	0	1	(\$)	1,105	0	0	1,106
Surinam	0	0	0	0	0	0	0	0	0	(\$)	15	0	(\$)	15
Sweden	0	1	0	0	0	0	0	2	(\$)	0	0	0	0	3
Switzerland	0	0	0	0	0	0	0	0	0	(\$)	0	0	0	(\$)
Thailand	0	0	0	0	0	0	1	15	(\$)	0	0	0	1	1
Trinidad and Tobago	0	0	0	0	0	0	0	0	0	(\$)	0	1	18	1
Turkey	0	0	0	0	0	0	0	0	0	(\$)	0	(\$)	(\$)	31
United Arab Emirates	0	0	0	0	0	0	0	0	0	0	0	0	38	1
United Kingdom	0	38	(\$)	0	4	0	0	0	0	0	0	0	0	(\$)
U.S.S.R.	0	0	0	0	0	0	0	1	1	30	(\$)	3	3	77
Uruguay	0	0	0	0	0	0	0	0	0	75	0	0	0	75
Venezuela	0	1	0	0	0	0	0	1	2	0	0	0	0	2
Virgin Islands	3,530	0	0	0	0	736	0	1	(\$)	66	(\$)	2	72	2
West Germany	0	(\$)	0	0	0	0	0	0	0	0	0	0	0	4,266
Yugoslavia	0	0	0	0	0	0	0	2	1	52	0	2	58	2
Other	475	1	(\$)	0	25	0	0	0	0	95	0	0	95	3
Total	5,355	1,202	50	131	1,203	2,536	42	342	23	5,394	12	583	16,874	582

1 Exports of crude oil are prohibited by law. However, some crude oil is exchanged with Canada on a barrel for barrel basis, and crude oil is shipped to U.S. territories (especially Puerto Rico and the Virgin Islands) to be refined there. The Statistical Tracking Systems count these exchanges and shipments as imports and exports.

2 Includes pentanes plus, kerosene, naphtha less than 400 degrees F, other oils greater than 400 degrees F and miscellaneous products.

(\$) = Less than 500 barrels or less than 500 barrels per day.

Note: Total may not equal sum of components due to independent rounding.  
Sources: See Explanatory Notes on Data Collection and Estimation.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels)

Commodity	PAD District I		PAD District II				PAD District III				PAD District IV				PAD Dist. V		United States	
	East Coast	Appalachian #1	Ind., Ill., Ky.	Appalachian #2	Ind., Wisc., Dak.	Minn., Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mt.	West Coast			
<b>Crude Oil (incl. lease condensate)</b>																		
Refinery .....	—	—	13,190	—	—	—	—	13,887	—	—	—	—	—	—	43,859	2,041	25,211	
Tank Farms and Pipelines .....	—	—	1,276	—	—	—	—	58,097	—	—	—	—	—	—	91,434	10,950	31,306	
Leases .....	—	—	58	—	—	—	—	1,587	—	—	—	—	—	—	16,905	1,366	1,660	
Strategic Petroleum Reserve .....	—	—	0	—	—	—	—	0	—	—	—	—	—	—	387,238	0	0	
Alaskan In-Transit .....	—	—	0	—	—	—	—	0	—	—	—	—	—	—	0	27,399	27,399	
Total .....	—	—	14,524	—	—	—	—	73,571	—	—	—	—	—	—	539,436	14,357	85,576	
<b>Total Stocks, All Oils (excl. Crude Oil)</b>																		
Refinery .....	37,543	2,608	40,151	1,039	41,223	8,196	14,619	65,077	10,685	72,840	46,440	4,736	1,561	136,262	13,143	64,989	319,622	
Tank Farms and Pipelines .....	—	—	123,936	—	—	—	—	81,125	—	—	—	—	—	—	69,049	3,058	21,515	
Leases .....	—	—	26,502	—	—	—	—	36,367	—	—	—	—	—	—	39,058	2,849	29,683	
Pipeline .....	—	—	36	165	0	274	64	1,233	1,571	1,623	3,454	915	72	229	6,283	236	109,762	
Natural Gas Processing Plant .....	129	—	190,754	—	—	—	—	184,140	—	—	—	—	—	—	250,662	19,288	91,591	
Total .....	—	—	190,754	—	—	—	—	—	—	—	—	—	—	—	—	—	736,435	
<b>Pentanes Plus</b>																		
Refinery .....	16	0	16	0	103	80	152	335	61	107	206	54	12	440	18	13	822	
Bulk Terminal .....	—	—	33	—	—	—	—	2,149	—	—	—	—	—	—	1,588	1	15	
Pipeline .....	—	—	0	—	—	—	—	487	—	—	—	—	—	—	3,316	85	5	
Natural Gas Processing Plant .....	—	—	3	7	0	61	20	251	332	456	451	392	28	31	1,358	82	22	
Total .....	—	—	56	—	—	—	—	—	3,303	—	—	—	—	—	4,702	186	55	
<b>Liquefied Petroleum Gases</b>																		
Refinery .....	600	16	616	189	1,471	137	624	2,421	198	603	1,773	21	26	2,621	301	683	6,642	
Bulk Terminal .....	—	—	1,117	—	—	—	—	16,726	—	—	—	—	—	—	42,759	78	539	
Pipeline .....	—	—	1,235	—	—	—	—	6,963	—	—	—	—	—	—	6,024	439	0	
Natural Gas Processing Plant .....	—	104	33	137	0	211	44	982	1,237	1,064	3,002	523	42	198	4,829	142	79	
Total .....	—	—	3,105	—	—	—	—	—	27,347	—	—	—	—	—	—	56,233	960	1,301
<b>Ethane</b>																		
Refinery .....	—	24	0	24	0	6	15	0	21	0	7	0	0	0	11,766	0	0	
Bulk Terminal .....	—	—	0	—	—	—	—	—	3,185	—	—	—	—	—	1,987	137	0	
Pipeline .....	—	—	0	—	—	—	—	1,843	—	—	—	—	—	—	18,141	2	1,707	
Natural Gas Processing Plant .....	—	0	0	0	0	25	0	269	294	103	1,290	—	—	—	15,171	139	0	
Total .....	—	—	—	24	—	—	—	—	5,343	—	—	—	—	—	—	—	20,577	

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels) (continued)

Commodity	PAD District I		PAD District II			PAD District III			PAD District IV			PAD District V		United States West Coast
	East Coast	Appa- lachian #1	Total	Appa- lachian #2	Ind., Ky.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La., Gulf Coast	No. La., Ark.	New Mexico	Total	
<b>Propane for Petrochemical Feedstock Use</b>														
Refinery	54	0	54	0	81	0	81	2	5	69	0	0	76	0
Total	—	—	54	—	—	0	81	—	—	—	—	—	76	0
<b>Propane For Other Uses</b>														
Refinery	465	5	470	2	821	31	200	1,054	56	61	921	5	6	1,049
Bulk Terminal	—	—	978	—	—	—	10,881	—	—	—	—	—	16,947	77
Pipeline	—	—	1,129	—	—	—	3,261	—	—	—	—	—	2,625	181
Natural Gas Processing Plant	—	87	33	120	0	134	32	508	674	462	826	390	20	97
Total	—	—	2,697	—	—	—	—	15,870	—	—	—	—	22,416	459
<b>Normal Butane For Petro. Feed Use</b>														
Refinery	0	0	0	0	0	0	26	0	26	0	11	0	2	0
Total	—	—	0	—	—	—	—	—	26	—	—	—	13	6
<b>Normal Butane For Other Uses</b>														
Refinery	57	11	68	101	345	32	277	755	95	283	362	3	13	756
Bulk Terminal	—	—	100	—	—	—	—	1,305	—	—	—	—	—	8,549
Pipeline	—	—	81	—	—	—	—	1,383	—	—	—	—	—	921
Natural Gas Processing Plant	—	15	0	15	0	27	9	119	155	428	574	80	15	69
Total	—	—	264	—	—	—	—	3,598	—	—	—	—	—	11,392
<b>Isobutane</b>														
Refinery	0	0	0	86	218	33	147	484	45	236	421	11	7	720
Bulk Terminal	—	—	39	—	—	—	—	1,355	—	—	—	—	—	5,497
Pipeline	—	—	25	—	—	—	—	476	—	—	—	—	—	491
Natural Gas Processing Plant	—	2	0	2	0	25	3	86	114	71	312	53	7	14
Total	—	—	66	—	—	—	—	2,429	—	—	—	—	—	7,165
<b>Other Hydrocarbons and Alcohol</b>														
Refinery	107	0	107	0	131	0	0	131	—	—	88	12	0	101
Total	—	—	107	—	—	—	—	131	—	—	—	—	—	101
<b>Unfinished Oils</b>														
Refinery	3,801	162	3,963	42	2,730	137	1,168	4,077	796	8,190	6,022	159	64	15,231
Naphthas and Lighter	1,773	27	1,800	0	2,131	2	560	2,693	535	1,777	1,77	6	8,397	354
Kerosene and Lighter Gas Oils	4,638	295	4,933	94	4,210	353	1,635	6,292	1,065	10,360	7,651	1,48	160	19,404
Heavy Gas Oils	1,717	266	1,983	2	2,805	14	1,084	3,905	321	4,720	2,833	41	68	7,983
Residuum	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Total	11,929	750	12,679	138	11,876	506	4,447	16,967	2,737	29,332	18,283	365	298	51,015
														26,514
														109,638

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels) (continued)

Commodity	PAD District I			PAD District II			PAD District III			PAD District IV			PAD Dist. V		United States			
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wis., Dak.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mt.	West Coast		
<b>Motor Gasoline Blending Components</b>																		
Refinery	4,263	84	4,347	37	5,409	898	1,717	8,001	1,580	7,875	6,483	173	271	16,382	2,452	8,181	39,363	
Bulk Terminal	—	—	88	—	—	—	—	—	129	—	—	—	—	665	0	193	1,075	
Pipeline	—	—	0	—	—	—	—	—	29	—	—	—	—	13	0	0	42	
Total	—	—	4,435	—	—	—	—	—	8,159	—	—	—	—	17,060	2,452	8,374	40,480	
<b>Aviation Gasoline Blending Components</b>																		
Refinery	0	0	0	0	141	0	7	148	0	11	203	0	0	214	0	26	388	
Total	—	—	0	—	—	—	—	148	—	—	—	—	—	214	0	26	388	
<b>Total Finished Motor Gasoline</b>																		
Refinery	5,242	247	5,489	120	6,096	1,825	2,788	10,829	2,559	9,460	5,036	986	244	18,285	2,838	7,657	45,098	
Bulk Terminal	—	—	40,828	—	—	—	—	—	32,262	—	—	—	—	—	12,153	1,819	10,192	97,255
Pipeline	—	—	14,452	—	—	—	—	—	17,197	—	—	—	—	—	18,678	1,615	2,348	54,290
Natural Gas Processing Plant	—	21	0	21	0	0	0	0	0	0	0	0	0	0	13	0	34	34
Total	—	—	60,791	—	—	—	—	—	60,288	—	—	—	—	—	49,116	6,285	20,197	196,677
<b>Finished Leaded Motor Gasoline</b>																		
Refinery	2,141	138	2,279	68	2,503	1,121	1,578	5,270	1,405	4,037	2,103	479	138	8,162	1,711	3,470	20,892	
Bulk Terminal	—	—	18,954	—	—	—	—	—	16,692	—	—	—	—	—	6,151	1,177	4,976	47,950
Pipeline	—	—	7,672	—	—	—	—	—	8,862	—	—	—	—	—	8,985	1,011	1,112	27,642
Natural Gas Processing Plant	—	8	0	8	0	0	0	0	0	0	0	0	0	0	0	0	0	17
Total	—	—	28,913	—	—	—	—	—	30,824	—	—	—	—	—	23,298	3,908	9,558	96,501
<b>Finished Unleaded Motor Gasoline</b>																		
Refinery	3,101	109	3,210	52	3,593	704	1,210	5,559	1,154	5,423	2,933	507	106	10,123	1,127	4,187	24,206	
Bulk Terminal	—	—	21,875	—	—	—	—	—	15,570	—	—	—	—	—	6,002	642	5,216	49,305
Pipeline	—	—	6,780	—	—	—	—	—	8,335	—	—	—	—	—	9,693	604	1,286	26,648
Natural Gas Processing Plant	—	13	0	13	0	0	0	0	0	0	0	0	0	0	4	0	0	17
Total	—	—	31,878	—	—	—	—	—	29,464	—	—	—	—	—	25,818	2,377	10,639	100,176
<b>Finished Aviation Gasoline</b>																		
Refinery	45	0	45	0	223	0	10	233	120	395	160	0	0	675	44	206	1,203	
Bulk Terminal	—	—	453	—	—	—	—	—	347	—	—	—	—	—	98	13	265	1,176
Pipeline	—	—	0	0	0	0	0	0	82	—	—	—	—	—	19	0	115	216
Natural Gas Processing Plant	—	0	0	0	0	0	0	0	0	0	0	0	0	44	0	0	44	44
Total	—	—	498	—	—	—	—	—	682	—	—	—	—	—	836	57	586	2,639

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousands of Barrels) (continued)

Commodity	PAD District I			PAD District II			PAD District III			PAD District IV			United States		
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	Total	Rocky Mt.	West Coast
<b>Naphtha-Type Jet Fuel</b>															
Refinery	305	29	334	0	509	122	169	800	224	710	212	157	120	1,423	174
Bulk Terminal	—	—	320	—	—	—	—	570	—	—	—	—	—	204	18
Pipeline	—	—	116	—	—	—	—	53	—	—	—	—	—	441	117
Total	—	—	770	—	—	—	—	1,423	—	—	—	—	—	2,068	309
<b>Kerosene-Type Jet Fuel</b>															
Refinery	1,014	0	1,014	35	1,425	232	90	1,782	299	2,190	2,139	10	44	4,682	321
Bulk Terminal	—	—	4,348	—	—	—	—	3,334	—	—	—	—	—	1,098	228
Pipeline	—	—	3,069	—	—	—	—	2,411	—	—	—	—	—	4,513	111
Total	—	—	8,431	—	—	—	—	7,527	—	—	—	—	—	10,293	660
<b>Kerosene</b>															
Refinery	362	42	404	0	527	45	274	846	73	602	661	46	64	1,446	3
Bulk Terminal	—	—	3,697	—	—	—	—	887	—	—	—	—	—	529	19
Pipeline	—	—	392	—	—	—	—	312	—	—	—	—	—	498	0
Natural Gas Processing Plant	—	0	0	0	0	0	0	0	2	0	0	0	0	0	0
Total	—	—	4,493	—	—	—	—	2,045	—	—	—	—	—	2,475	22
<b>Distillate Fuel Oils</b>															
Refinery	6,524	283	6,807	63	5,954	1,495	2,563	10,075	1,214	8,802	3,786	682	192	14,676	2,008
Bulk Terminal	—	—	40,348	—	—	—	—	18,166	—	—	—	—	—	4,830	735
Pipeline	—	—	7,201	—	—	—	—	8,808	—	—	—	—	—	7,272	482
Natural Gas Processing Plant	—	0	0	0	0	0	0	0	2	1	0	0	0	0	0
Total	—	—	54,356	—	—	—	—	37,049	—	—	—	—	—	26,781	3,225
<b>Residual Fuel Oils</b>															
Refinery	3,074	90	3,164	44	1,880	289	225	2,438	334	5,381	2,621	245	6	8,587	401
Bulk Terminal	—	—	27,602	—	—	—	—	1,742	—	—	—	—	—	4,273	0
Pipeline	—	—	31	—	—	—	—	0	—	—	—	—	—	1,621	0
Total	—	—	30,797	—	—	—	—	4,180	—	—	—	—	—	12,881	401
<b>Naphtha &lt; 400 Deg. Petro. Feedstock</b>															
Refinery	326	0	326	0	104	0	49	153	88	706	209	48	0	1,051	0
Total	326	0	326	0	104	0	49	153	88	706	209	48	0	1,051	0
<b>Other Oils &gt; 400 Deg. Petro. Feedstock</b>															
Refinery	4	0	4	0	19	0	0	19	19	191	1,051	255	0	0	1,497
Total	4	0	4	0	19	0	0	19	19	191	1,051	255	0	0	1,497
														2	412
														2	412
														1,934	1,934

See footnotes at end of table.

Table 20. Stocks of Crude Oil and Petroleum Products by PAD District, February 1984  
(Thousand Barrels) (continued)

Commodity	PAD District I		PAD District II				PAD District III				PAD District IV				PAD District V		United States	
	East Coast	Appalachian #1	Total	Appalachian #2	Ind., Ill., Ky.	Minn., Wis., Dak.	Oklahoma, Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No La., Ark.	New Mexico	Total	Rocky Mt.	West Coast		
<b>Special Naphthas</b>																		
Refinery	99	55	154	0	213	0	164	377	22	1,347	54	173	0	1,596	9	202	2,338	
Bulk Terminal	—	—	468	—	—	0	—	127	—	—	—	—	—	122	0	31	748	
Natural Gas Processing Plant	0	0	0	0	0	0	0	0	48	0	0	0	0	48	0	0	48	
Total	—	—	622	—	—	—	—	504	—	—	—	—	—	1,766	9	233	3,134	
<b>Lubricants</b>																		
Refinery	1,216	853	2,069	0	759	0	268	1,027	27	2,914	1,246	581	0	4,768	81	545	8,490	
Bulk Terminal	—	—	1,038	—	—	—	—	1,070	—	—	—	—	—	255	3	880	3,246	
Total	—	—	3,107	—	—	—	—	2,097	—	—	—	—	—	5,023	84	1,425	11,736	
<b>Waxes</b>																		
Refinery	9	107	116	0	22	0	45	67	14	201	133	74	0	422	0	52	657	
Total	—	—	116	—	—	—	—	67	—	—	—	—	—	422	0	52	657	
<b>Petroleum Coke</b>																		
Refinery	1,009	0	1,009	0	407	676	122	1,205	1	179	1,624	195	0	1,999	138	1,973	6,324	
Total	1,009	0	1,009	0	407	676	122	1,205	1	179	1,624	195	0	1,999	138	1,973	6,324	
<b>Asphalt and Road Oil</b>																		
Refinery	1,211	21	1,232	413	3,828	1,941	883	7,065	911	401	1,278	868	284	3,742	1,885	1,703	15,627	
Bulk Terminal	—	—	3,407	—	—	—	—	3,590	—	—	—	—	—	439	144	348	7,928	
Total	—	—	4,639	—	—	—	—	10,655	—	—	—	—	—	4,181	2,029	2,051	23,555	
<b>Miscellaneous Products</b>																		
Refinery	188	31	219	0	126	10	22	158	31	485	66	58	0	640	5	149	1,171	
Bulk Terminal	—	—	188	—	—	—	—	26	—	—	—	—	—	36	0	76	326	
Pipeline	—	—	6	—	—	2	—	25	—	—	—	—	—	283	0	100	414	
Natural Gas Processing Plant	0	0	0	0	0	0	0	2	0	0	0	2	0	9	1	0	12	
Total	—	—	413	—	—	—	—	211	—	—	—	—	—	968	6	325	1,923	
<b>Total Stocks, All Oils</b>		—	—	205,278	—	—	—	—	—	—	—	—	—	—	790,098	33,645	177,167	1,463,899

<sup>1</sup> Includes 33,879 thousand barrels of domestic crude oil.

Source: See Explanatory Notes on Data Collection and Estimation.

— Not Applicable.

**Table 21. Movements of Crude Oil and Petroleum Products by Pipeline, Tanker, and Barge between PAD Districts, February 1984**  
(Thousand Barrels)

Commodity	From I to				From II to				From III to				From IV to				From V to				
	II	III	IV	V	I	II	III	IV	V	II	III	IV	V	II	III	IV	V	II	III	IV	
Crude Oil (Tanker and Barge only) .....	0	0	0	0	0	0	0	0	0	385	1,828	0	0	0	0	0	0	3,194	535	13,089	0
Petroleum Products .....	7,747	147	0	3,036	8,280	2,243	0	81,531	24,160	0	2,027	1,436	635	1,098	242	0	258	0	0	0	0
Pentanes Plus .....	0	0	0	0	70	0	0	0	663	0	0	77	88	0	0	0	0	0	0	0	0
Liquified Petroleum Gases .....	0	0	0	947	5,288	164	0	1,839	8,123	0	0	0	670	547	0	0	0	0	0	0	223
Unfinished Oils .....	0	0	0	0	0	0	0	0	459	0	0	0	0	0	0	0	0	0	0	0	0
Motor Gasoline Blending Components .....	0	0	0	0	0	0	0	0	38	0	0	0	0	0	0	0	0	0	0	0	35
Aviation Gasoline Blending Components .....	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline .....	5,103	0	0	1,122	2,160	1,198	0	42,327	10,675	0	935	356	0	855	0	0	0	0	0	0	0
Finished Leaded Motor Gasoline .....	2,781	0	0	280	897	613	0	15,985	4,962	0	508	218	0	540	0	0	0	0	0	0	0
Finished Unleaded Motor Gasoline .....	2,322	0	0	842	1,263	585	0	26,342	5,713	0	447	138	0	315	0	0	0	0	0	0	0
Finished Aviation Gasoline .....	0	0	0	0	0	0	18	0	175	152	0	0	0	0	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel .....	102	0	0	0	0	107	0	0	276	2	0	294	87	0	0	68	0	0	0	0	0
Kerosene-Type Jet Fuel .....	329	0	0	128	88	754	0	9,664	2,341	0	173	0	0	39	0	0	0	0	0	0	0
Kerosene .....	80	0	0	0	0	0	0	0	1,191	131	0	0	0	0	0	0	0	0	0	0	0
Distillate Fuel Oil .....	1,829	0	0	412	439	109	0	22,972	1,548	0	319	246	0	136	242	0	0	0	0	0	0
Residual Fuel Oil .....	1	135	0	186	57	0	0	1,400	55	0	196	0	0	0	0	0	0	0	0	0	0
Naphtha and Other Oils for Petro.																					
Feedstock .....	50	0	0	27	0	0	0	0	9	17	0	0	0	0	0	0	0	0	0	0	0
Special Naphthas .....	0	0	0	0	0	0	0	0	195	105	0	0	0	0	0	0	0	0	0	0	0
Lubricants .....	0	2	0	45	41	0	0	0	518	277	0	90	0	0	0	0	0	0	0	0	0
Waxes .....	0	0	0	0	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0
Asphalt and Road Oil .....	0	0	0	0	0	0	0	0	188	58	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Products .....	263	10	0	169	30	0	0	271	13	0	0	0	0	0	0	0	0	0	0	0	0
<b>Total All Products .....</b>	<b>7,747</b>	<b>147</b>	<b>0</b>	<b>3,036</b>	<b>8,280</b>	<b>2,243</b>	<b>0</b>	<b>81,916</b>	<b>25,988</b>	<b>0</b>	<b>2,027</b>	<b>1,436</b>	<b>635</b>	<b>1,098</b>	<b>3,376</b>	<b>535</b>	<b>13,347</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Source: See Explanatory Notes on Data Collection and Estimation.

**Table 22. Movements of Petroleum Products by Pipeline between PAD Districts, February 1984**  
(Thousand Barrels)

Commodity	From I to				From II to				From III to				From IV to				From V to				
	II	III	1	IV	1	II	IV	V	II	III	V	II	III	V	II	III	V	II	III	V	II
Pentanes Plus	0	0	0	70	0	663	0	0	77	88	0	0	0	0	0	0	0	0	0	0	0
Liquified Petroleum Gases	0	0	347	5,288	164	1,643	8,123	0	0	670	547	0	0	0	0	0	0	0	0	0	0
Motor Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline	3,557	0	960	2,148	1,198	32,475	10,065	0	955	356	0	0	0	0	0	0	0	0	0	0	0
Finished Leaded Motor Gasoline	1,910	0	223	885	613	12,247	4,696	0	508	218	0	0	0	0	0	0	0	0	0	0	0
Finished Unleaded Motor Gasoline	1,647	0	737	1,283	585	20,228	5,368	0	447	138	0	0	0	0	0	0	0	0	0	0	0
Finished Aviation Gasoline	0	0	0	0	18	0	130	7	0	0	0	0	0	0	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	0	0	0	107	0	261	2	0	294	87	0	0	0	0	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	213	0	118	88	754	6,515	1,994	0	173	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene	55	0	0	0	0	0	1,025	122	0	0	0	0	0	0	0	0	0	0	0	0	0
Distillate Fuel Oil	1,297	0	393	439	109	17,014	1,355	0	319	246	0	0	0	0	0	0	0	0	0	0	0
Residual Fuel Oil	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Miscellaneous Products	0	0	144	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5,122	0	2,562	8,140	2,243	58,940	22,455	0	1,741	1,436	635	1,098	0	0	0	0	0	0	0	0	0

Source: See Explanatory Notes on Data Collection and Estimation.

**Table 23. Movements of Crude Oil and Petroleum Products by Tanker and Barge between PAD Districts, February 1984**  
(Thousand Barrels)

Commodity	From I to				From II to				From III to				From IV to				From V to			
	II	III	V	I	II	III	V	I	New Eng	Cent Alt	Low Alt	II	V	I	II	V	I	II	V	I
Crude Oil	0	0	0	0	0	0	0	0	385	0	385	0	1,828	0	3,134	535	13,089	0	0	0
Petroleum Products	2,625	147	0	474	140	0	22,591	2,006	5,068	15,517	1,705	286	242	0	0	0	0	0	0	258
Liquified Petroleum Gases	0	0	0	0	0	0	0	196	0	371	196	0	0	0	0	0	0	0	0	0
Unfinished Oils	0	0	0	0	0	0	0	459	0	0	0	0	0	0	0	0	0	0	0	223
Motor Gasoline Blending Components	0	0	0	0	0	0	0	38	0	0	0	38	0	0	0	0	0	0	0	35
Finished Motor Gasoline	1,546	0	0	162	12	0	9,852	372	460	9,020	609	0	0	0	0	0	0	0	0	0
Finished Leaded Motor Gasoline	871	0	57	12	0	3,738	77	48	3,613	284	0	0	0	0	0	0	0	0	0	0
Finished Unleaded Motor Gasoline	675	0	105	0	0	6,114	295	412	5,407	345	0	0	0	0	0	0	0	0	0	0
Finished Aviation Gasoline	0	0	0	0	0	0	168	0	54	114	22	0	0	0	0	0	0	0	0	0
Naphtha-Type Jet Fuel	102	0	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0
Kerosene-Type Jet Fuel	116	0	0	10	0	0	3,149	401	856	1,892	347	0	0	0	0	0	0	0	0	0
Kerosene	25	0	0	0	0	0	166	53	99	14	9	0	0	0	0	0	0	0	0	0
Distillate Fuel Oil	532	0	19	0	0	5,958	974	2,422	2,562	193	0	0	0	0	0	0	0	0	0	0
Residual Fuel Oil	1	135	0	186	57	0	1,400	191	95	1,114	55	196	0	0	0	0	0	0	0	0
Naphtha and Other Oils for Petro. Feed. Use	50	0	0	27	0	0	9	0	0	9	17	0	0	0	0	0	0	0	0	0
Special Naphthas	0	0	0	0	0	0	195	0	109	86	105	0	0	0	0	0	0	0	0	0
Lubricants	0	2	0	45	41	0	518	0	367	151	277	90	0	0	0	0	0	0	0	0
Waxes	0	0	0	0	0	0	9	0	0	9	0	0	0	0	0	0	0	0	0	0
Asphalt and Road Oil	0	0	0	0	0	0	188	0	0	188	58	0	0	0	0	0	0	0	0	0
Miscellaneous Products	253	10	0	25	30	0	271	0	226	45	13	0	0	0	0	0	0	0	0	0
Total	2,625	147	0	474	140	0	22,976	2,006	5,453	15,517	3,533	286	3,376	535	13,347	0	0	0	0	0

Source. See Explanatory Notes on Data Collection and Estimation.

Table 24. Net Movements of Crude Oil and Petroleum Products by Pipeline, Tanker and Barge between PAD Districts, February 1984  
(Thousand Barrels)

Commodity	PAD District I		PAD District II		PAD District III		PAD District IV		PAD District V		
	Receipts into PADD I	Shipments from PADD I	Net Receipts into PADD I	Shipments from PADD II	Net Receipts into PADD II	Shipments from PADD III	Net Receipts into PADD III	Shipments from PADD IV	Net Receipts into PADD IV	Shipments from PADD V	Net Receipts into PADD V
Crude Oil (Tanker and Barge only)	3,519	0	3,519	2,363	0	2,363	13,089	2,213	10,876	0	0
Petroleum Products	84,809	7,894	76,915	33,343	19,784	9,320	107,718	-98,398	2,243	3,169	-926
Pantanes Plus	0	0	0	740	70	158	663	-505	0	165	-165
Liquefied Petroleum Gases	2,786	0	2,786	8,793	6,399	2,394	5,835	9,962	-4,127	164	1,217
Unfinished Oils	459	0	459	0	0	0	223	459	-236	0	0
Motor Gasoline Blending Components	38	0	38	0	0	0	35	38	-3	0	0
Aviation Gasoline Blending Components	0	0	0	0	0	0	0	0	0	0	0
Finished Motor Gasoline	43,449	5,103	38,346	16,134	4,480	11,654	2,160	53,957	-51,797	1,198	1,211
Finished Leaded Motor Gasoline	16,265	2,781	13,484	7,961	6,171	897	21,455	-20,558	613	758	-145
Finished Unleaded Motor Gasoline	27,184	2,322	24,862	8,173	2,590	5,483	1,263	32,502	-31,239	585	453
Finished Aviation Gasoline	175	0	175	152	18	134	0	327	-227	18	0
Naphtha-Type Jet Fuel	276	102	174	181	107	84	107	572	-465	0	155
Kerosene-Type Jet Fuel	9,792	329	9,463	2,670	970	1,700	88	12,178	-12,090	754	39
Kerosene	11,191	80	11,111	2,111	0	211	0	-1,322	0	0	0
Distillate Fuel Oil	23,626	1,829	21,797	3,623	960	2,663	439	24,839	-24,400	109	382
Naphtha and Other Oils for Petro.	1,586	136	1,450	56	243	-187	192	-1,651	-1,459	0	0
Feedstock Use	36	50	-14	67	27	40	0	26	-26	0	0
Special Naphthas	195	0	195	105	0	105	0	300	-300	0	0
Lubricants	563	2	561	277	86	191	43	885	-842	0	0
Waxes	9	0	9	0	0	0	9	-9	0	0	90
Asphalt and Road Oil	188	0	188	58	0	58	0	246	-246	0	0
Miscellaneous Products	440	263	177	266	199	67	40	284	-244	0	0
<b>Total All Products</b>	<b>88,328</b>	<b>7,894</b>	<b>80,434</b>	<b>35,706</b>	<b>13,559</b>	<b>22,147</b>	<b>22,409</b>	<b>109,331</b>	<b>-87,522</b>	<b>2,243</b>	<b>3,168</b>
										<b>-926</b>	<b>3,125</b>
											<b>17,258</b>
											<b>-14,133</b>

Source: See Explanatory Notes on Data Collection and Estimation.

**Table 25. Production of Residual Fuel Oil by Sulfur Content, February 1984**  
(Thousands Barrels)

Commodity	PAD District I		PAD District II		PAD District III		PAD District IV		PAD District V		United States	
	East Coast	Appalachian #1	Appalachian #2	Ind., Ky.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	
Residual Fuel Oil	4,146	142	4,288	66	1,928	249	388	2,631	656	7,914	3,034	293
0.00 to 0.30% Sulfur	539	43	582	0	168	0	27	195	37	680	319	60
0.31 to 1.00% Sulfur	2,439	2	2,441	33	603	0	56	692	472	1,861	1,057	171
Greater Than 1.00% Sulfur	1,168	97	1,265	33	1,157	249	305	1,744	147	5,373	1,658	62
												6
												7,246
												146
												7,225
												17,626

Source: See Explanatory Notes on Data Collection and Estimation.

**Table 26. Stocks of Residual Fuel Oil by Sulfur Content, February 1984**  
(Thousands Barrels)

Commodity	PAD District I		PAD District II		PAD District III		PAD District IV		PAD District V		United States	
	East Coast	Appalachian #1	Appalachian #2	Ind., Ky.	Okla., Kans., Mo.	Total	Texas Inland	Texas Gulf Coast	La. Gulf Coast	No. La., Ark.	New Mexico	
Residual Fuel Oil - 0.00 to 0.30% Sulfur												
Refinery	502	38	540	0	156	0	38	194	44	168	134	11
Bulk Terminal	—	—	6,072	—	—	—	—	9	—	—	—	3
Total	—	—	6,612	—	—	—	203	—	—	—	—	360
Residual Fuel Oil - 0.31 to 1.00% Sulfur												
Refinery	1,701	3	1,704	40	626	0	26	692	111	1,628	1,134	183
Bulk Terminal	—	—	10,832	—	—	—	—	492	—	—	—	0
Total	—	—	12,396	—	—	—	—	1,184	—	—	—	3,056
Residual Fuel Oil - Greater than 1.00% Sulfur												
Refinery	871	49	920	4	1,098	289	161	1,552	179	3,585	1,353	51
Bulk Terminal	—	—	10,838	—	—	—	—	1,241	—	—	—	5,304
Total	—	—	11,758	—	—	—	—	2,793	—	—	—	6,249

Source: See Explanatory Notes on Data Collection and Estimation  
— Not Applicable

**Table 27. Movements of Residual Fuel Oil by Tanker and Barge between PAD Districts, By Sulfur Content, February 1984**  
(Thousands Barrels)

Commodity	From I to					From II to					From III to					From IV to					From V to					
	II	III	V	I	III	V	I	New Eng	Cent Atl	Low Atl	II	V	I	II	III	IV	V	II	V	I	II	III	IV	V	II	III
Residual Fuel Oil	1	135	0	186	57	0	1,400	191	95	1,114	55	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.00 to 0.30% Sulfur	0	0	0	0	0	0	95	0	95	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0.31 to 1.00% Sulfur	1	0	0	0	0	0	403	191	0	212	0	196	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Greater Than 1.00% Sulfur	0	135	0	186	0	0	902	0	0	902	55	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Source: See Explanatory Notes on Data Collection and Estimation.

**Table 28. Imports of Residual Fuel Oil by Sulfur Content by Country of Origin, February 1984  
(Thousand Barrels)**

Country	Residual Fuel Oil			
	0.00 to 0.30%	0.31 to 1.00%	Greater Than 1.00%	Total
<b>Arab OPEC</b>				
Algeria .....	1,374	0	0	1,374
Iraq .....	0	0	0	0
Kuwait .....	524	0	0	524
Libya .....	0	0	0	0
Qatar .....	0	0	0	0
Saudi Arabia .....	0	0	0	0
United Arab Emirates .....	0	0	434	434
Subtotal Arab OPEC .....	1,898	0	434	2,332
<b>Other OPEC</b>				
Ecuador .....	0	0	118	118
Gabon .....	246	0	0	246
Indonesia .....	147	51	45	244
Iran .....	0	0	0	0
Nigeria .....	69	21	0	90
Venezuela .....	1,310	478	3,220	5,008
Subtotal Other OPEC .....	1,773	550	3,383	5,706
<b>Other</b>				
Angola .....	0	268	0	268
Australia .....	0	0	0	0
Bahamas .....	1,087	0	218	1,305
Bolivia .....	0	0	0	0
Brazil .....	279	0	0	279
Brunei .....	0	0	0	0
Canada .....	236	263	212	711
Congo .....	190	0	0	190
Egypt .....	0	0	0	0
France .....	0	0	0	0
Ghana .....	0	0	0	0
Liberia .....	198	0	0	198
Malaysia .....	0	0	0	0
Mexico .....	0	0	307	307
Netherlands .....	512	237	0	748
Netherlands Antilles .....	1,569	0	4,268	5,838
Norway .....	0	0	0	0
Oman .....	273	0	312	585
People's Republic of China .....	0	0	0	0
Peru .....	646	0	261	906
Puerto Rico .....	0	0	0	0
Romania .....	0	0	0	0
Spain .....	0	409	0	409
Syria .....	0	0	0	0
Trinidad .....	0	0	585	585
Tunisia .....	0	0	0	0
United Kingdom .....	526	0	0	526
Virgin Islands .....	2,653	3,379	208	6,240
Yugoslavia .....	0	0	0	0
Zaire .....	0	0	0	0
<b>Other</b>				
Other Western Hemisphere .....	828	363	843	2,034
Other Eastern Hemisphere .....	1,695	1,179	48	2,922
Subtotal Other .....	10,692	6,098	7,262	24,051
<b>Total Imports</b> .....	<b>14,363</b>	<b>6,847</b>	<b>11,079</b>	<b>32,089</b>

(a) = Less than 500 barrels.

Note: Total may not equal sum of components due to independent rounding.

Source: See Explanatory Notes on Data Collection and Estimation.

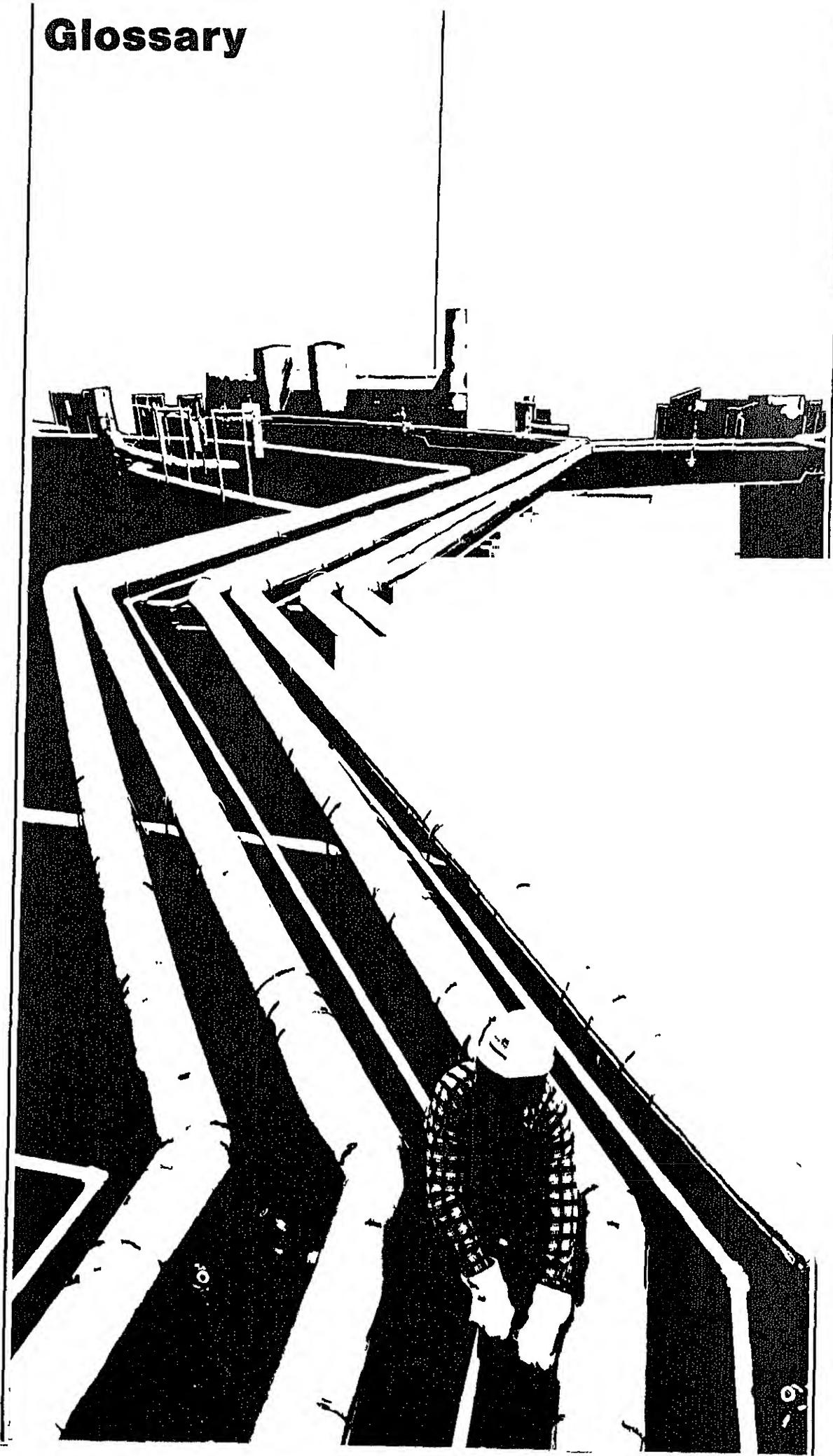
Table 29. Imports of Residual Fuel Oil by Sulfur Content by State of Entry, February 1984  
(Thousands Barrels)

State	Residual Fuel Oil			
	0.00 to 0.30%	0.31 to 1.00%	Greater Than 1.00%	Total
<b>PAD District I</b>	<b>13,455</b>	<b>6,386</b>	<b>10,953</b>	<b>30,793</b>
Connecticut	467	0	0	467
Delaware	238	0	0	238
Florida	80	335	847	1,262
Maine	206	0	1,538	1,745
Maryland	389	562	365	1,315
Massachusetts	1,123	530	1,490	3,144
New Hampshire	175	50	484	709
New Jersey	892	946	1,832	3,670
New York	8,718	2,905	2,548	14,171
North Carolina	215	0	283	498
Pennsylvania	514	659	465	1,638
South Carolina	151	0	365	506
Vermont	13	0	0	13
Virginia	273	400	745	1,418
<b>PAD District II</b>	<b>130</b>	<b>59</b>	<b>7</b>	<b>195</b>
Illinois	0	43	0	43
Michigan	126	15	0	141
Minnesota	0	0	2	2
North Dakota	4	0	5	9
<b>PAD District III</b>	<b>625</b>	<b>0</b>	<b>0</b>	<b>625</b>
Texas	625	0	0	625
<b>PAD District IV</b>	<b>6</b>	<b>0</b>	<b>18</b>	<b>23</b>
Montana	6	0	18	23
<b>PAD District V</b>	<b>147</b>	<b>203</b>	<b>101</b>	<b>452</b>
California	147	0	7	155
Hawaii	0	203	94	297
<b>All PAD Districts</b>	<b>14,363</b>	<b>6,647</b>	<b>11,079</b>	<b>32,089</b>

Note. Total may not equal sum of components due to independent rounding

Source: See Explanatory Notes on Data Collection and Estimation

# Glossary





# Definitions of Petroleum Products and Other Terms

**Alcohol.** The family name of a group of organic chemical compounds composed of carbon, hydrogen, and oxygen. The series of molecules vary in chain length and are composed of a hydrocarbon plus a hydroxyl group; CH<sub>n</sub>-(CH<sub>n</sub>)<sub>n</sub>-OH. Alcohol includes methanol and ethanol.

**Alkylation.** A refinery process for chemically combining isoparaffin with olefin hydrocarbons. The product, alkylate, has high octane value and is blended with motor and aviation gasoline to improve the antiknock value of the fuel.

**API Gravity.** An arbitrary scale expressing the gravity or density of liquid petroleum products. The measuring scale is calibrated in terms of degrees API; it may be calculated in terms of the following formula:

$$\text{Deg API} = \frac{141.5}{\text{sp gr } 60\text{F}/60\text{F}} - 131.5$$

**Aromatics.** Hydrocarbons characterized by unsaturated ring structures of carbon atoms. Commercial petroleum aromatics are benzene, toluene, and xylene.

**Asphalt.** A dark-brown-to-black cement-like material containing bitumens as the predominant constituents, obtained by petroleum processing. The definition includes crude asphalt as well as the following finished products: cements, fluxes, the asphalt content of emulsions (exclusive of water), and petroleum distillates blended with asphalt to make cutback asphalts. The conversion factor for asphalt is 5.5 barrels of 42 U.S. gallons per short ton.

**ASTM.** The acronym for the American Society for Testing and Materials.

**Aviation Gasoline Blending Components.** Finished components in the gasoline range which will be used for blending or compounding into finished aviation gasoline.

**Aviation Gasoline (Finished).** All special grades of gasoline for use in aviation reciprocating engines, as given in ASTM Specification D910 and Military Specification MIL-G-5572. Excludes blending components which will be used in blending or compounding into finished aviation gasoline.

**Barrel.** A volumetric unit of measure for crude oil and petroleum products equivalent to 42 U.S. gallons. This measure is used in most statistical reports. Factors for converting petroleum coke, asphalt and wax to barrels are given in the definitions for these products.

**Barrels Per Calendar Day.** See **Operable Capacity**.

**Barrels Per Stream Day.** See **Operable Capacity**.

**Bi-Metallic.** A term used to describe a type of catalyst. A catalytic process utilizing a catalyst comprised of two metals (e.g. platinum, rhodium).

**Butane.** A normally gaseous straight-chain or branch-chain hydrocarbon, (C<sub>4</sub>H<sub>10</sub>). It is extracted from natural gas or refinery gas streams. It includes isobutane and normal butane and is covered by ASTM Specification D1835 and Gas Processors Association Specifications for commercial butane.

**Isobutane.** A normally gaseous branch-chain hydrocarbon, (C<sub>4</sub>H<sub>10</sub>). It is a colorless paraffinic gas that boils at a temperature of 10.9 degrees F. It is extracted from natural gas or refinery gas streams.

**Normal Butane.** A normally gaseous straight-chain hydrocarbon, (C<sub>4</sub>H<sub>10</sub>). It is a colorless paraffinic gas that boils at a temperature of 31.1 degrees F. It is extracted from natural gas or refinery gas streams.

**Butylene.** An olefinic hydrocarbon, (C<sub>4</sub>H<sub>8</sub>), recovered from refinery processes.

**Catalytic Cracking.** The refining process of breaking down the larger, heavier, and more complex hydrocarbon molecules into simpler and lighter molecules. Catalytic cracking is accomplished by the use of a catalytic agent and is an effective process for increasing the yield of gasoline from crude oil.

**Catalytic Hydrocracking.** A refining process for converting middle boiling or residual material to high-octane gasoline, reformer charge stock, jet fuel and/or high grade fuel oil. Hydrocracking is an efficient, relatively low temperature process using hydrogen and a catalyst.

**Catalytic Hydrotreating.** A process for treating petroleum fractions (e.g. distillate fuel oil and residual oil) and unfinished oils (e.g. naphthas, reformer feeds and heavy gas oils) in the presence of catalysts and substantial quantities of hydrogen to upgrade their quality.

**Catalytic Reforming.** The use of controlled heat and pressure with catalysts to effect the rearrangement of certain hydrocarbon molecules without altering their composition appreciably; the conversion of low-octane gasoline fractions into higher octane stocks suitable for blending into finished gasoline; also the conversion of naphthas to obtain a more volatile product of higher octane number.

**Conventional.** A term used to describe a type of catalyst. A catalytic process utilizing a catalyst comprised of a metal and a non-metal (e.g. platinum, alumina).

**Coal.** A generic term applied to carbonaceous rocks that were formed by the partial or complete decomposition of vegetation. These stratified carbonaceous rocks are either solid or brittle and are highly combustible. In-

cludes lignite, bituminous coal, and anthracite which conform to ASTM Specification D388.

**Crude Distillation.** The refining process of separating crude oil components by heating and subsequent condensing of the fractions by cooling.

**Crude Oil (including Lease Condensate).** A mixture of hydrocarbons that existed in liquid phase in underground reservoirs and remains liquid at atmospheric pressure after passing through surface separating facilities. Included are lease condensate and liquid hydrocarbons produced from tar sands, lignite and oil shale. Drill gases are also included, but topped crude oil (residual) oil and other unfinished oils are excluded. Liquids produced at natural gas processing plants and mixed with crude oil are likewise excluded where identifiable. Crude oil is considered as either domestic or foreign according to the following:

**Domestic.** Crude oil produced in the United States or from its "outer continental shelf" as defined in 43 U.S.C. 1331.

**Foreign.** Crude oil produced outside the United States. Imported Athabasca hydrocarbons are included.

**Delayed Coking.** A process to produce low Conradson carbon gas for catalytic cracking feedstock and for gasoline.

**Distillate Fuel Oil.** A general classification for one of the petroleum fractions produced in conventional distillation operations. It is used primarily for space heating, on-and-off-highway diesel engine fuel (including railroad engine fuel and fuel for agricultural machinery), and electric power generation. Included are products known as No. 1, No. 2, and No. 4 fuel oils; No. 1, No. 2, and No. 4 diesel fuels.

**No. 1 Fuel Oil.** A light distillate fuel oil intended for use in vaporizing pot-type burners. ASTM Specification D396 specifies for this grade maximum distillation temperatures of 400 degrees F. at the 10-percent point and 550 degrees F. at the 90-percent point, and kinematic viscosities between 1.4 and 2.2 centistokes at 100 degrees F.

**No. 2 Fuel Oil.** A distillate fuel oil for use in atomizing-type burners for domestic heating or for moderate capacity commercial-industrial burner units. ASTM Specification D396 specifies for this grade distillation temperatures at the 90-percent point between 540 degrees and 640 degrees F., and kinematic viscosities between 2.0 and 3.6 centistokes at 100 degrees F.

**No. 1 and No. 2 Diesel Fuel Oils.** Distillate fuel oils used in compression-ignition engines, as given by ASTM Specification D975.

**No. 1-D.** A volatile distillate fuel oil with a boiling range between 300-575 degrees F. and used in high-speed diesel engines generally operated under variations in speed and load. Includes type C-B diesel fuel used for city buses and similar operations. Properties are defined in ASTM Specification D975.

**No. 2-D.** A gas oil type distillate of lower volatility with distillation temperatures at the 90-percent point between 540-640 degrees F. for use in high-speed diesel engines generally operated under uniform speed and load conditions. Includes Type R-R diesel fuel used for railroad locomotive engines, and Type T-T for diesel-engine trucks. Properties are defined in ASTM Specification D975.

**No. 4 Fuel Oil.** A fuel oil for commercial burner installations not equipped with preheating facilities. It is used extensively in industrial plants. This grade is a blend of distillate fuel oil and residual fuel oil stocks that conforms to ASTM Specification D396 or Federal Specification VV-F-815C; its kinematic viscosity is between 5.8 and 26.4 centistokes at 100 degrees F. Also included is No. 4-D, a fuel oil for low- and medium-speed diesel engines that conforms to ASTM Specification D975.

**Eastern Hemisphere.** That half of the earth east of the Atlantic Ocean which includes Europe, Asia, Africa and Australia. The Hawaiian Foreign Trade Zone is in this hemisphere.

**Electric Energy (Purchased).** Electricity purchased for refinery operations that is not produced within the refinery complex.

**Ethane.** A normally gaseous straight-chain hydrocarbon, (C<sub>2</sub>H<sub>6</sub>). It is a colorless paraffinic gas that boils at a temperature of -127.48 degrees F. It is extracted from natural gas and refinery gas streams.

**Ethylene.** An olefinic hydrocarbon, (C<sub>2</sub>H<sub>4</sub>), recovered from refinery processes or petrochemical processes.

**Field Production.** Represents crude oil production on leases, natural gas liquids production at natural gas processing plants, and new supply of other hydrocarbons and alcohol.

**Fluid Coking.** A thermal process utilizing the fluidized-solids technique for continuous conversion of heavy, low-grade oils into lighter products.

**Gasohol.** See **Motor Gasoline (Finished)**.

**Gas Oil.** A liquid petroleum distillate having a viscosity intermediate between that of kerosene and lubricating oil. Derives its name from having originally been used in the manufacture of illuminating gas. Now supplies distillate-type fuel oils and diesel fuel, also cracked to produce gasoline.

**Gasoline Blending Components.** Finished components in the gasoline range which will be used for blending or compounding into finished aviation or motor gasoline.

**Idle Capacity.** The component of operable capacity that is not in operation and not under active repairs, but capable of being placed in operation within 30 days; and capacity not in operation but under active repairs that can be completed within 90 days.

**Imported Crude Oil Burned As Fuel.** The amount of foreign crude oil burned as a fuel oil, usually as residual fuel oil, without being processed as such. Imported

**crude oil** burned as fuel includes lease condensate and liquid hydrocarbons produced from tar sand oil, glisone, and shale oil.

**Isobutane.** See **Butane**.

**Isomerization.** A refining process which alters the fundamental arrangement of atoms in the molecule. Used to convert normal butane into isobutane, an alkylation process feedstock, and normal pentane and hexane into isopentane and isohexane, high-octane gasoline components.

**Kerosene.** A petroleum distillate that boils at a temperature between 300-550 degrees F., that has a flash point higher than 100 degrees F. by ASTM Method D56, that has a gravity range from 40-46 degrees API, and that has a burning point in the range of 150-175 degrees F. Included are the two classifications recognized by ASTM D3699: No. 1-K and No. 2-K, and all grades of kerosene called range or stove oil which have properties similar to No. 1 fuel oil, but with a gravity of about 43 degrees API and a maximum end-point of 625 degrees F. Kerosene is used in space heaters, cook stoves, and water heaters and is suitable for use as an illuminant when burned in wick lamps.

**Kerosene-Type Jet Fuel.** A quality kerosene product with an average gravity of 40.7 degrees API, and a 10 percent distillation temperature of 400 degrees F. It is covered by ASTM Specification D1655 and Military Specification MIL-T-5624L (Grades JP-5 and JP-8). A relatively low-freezing point distillate of the kerosene type; it is used primarily for commercial turbojet and turboprop aircraft engines.

**Lease Condensate.** A natural gas liquid recovered from gas well gas (associated and nonassociated) in lease separators or natural gas field facilities. Lease condensate consists primarily of pentanes and heavier hydrocarbons.

**Liquefied Petroleum Gases (LPG).** Ethane, ethylene, propane, propylene, normal butane, butylene, and isobutane produced at refineries or natural gas processing plants, including plants that fractionate raw natural gas plant liquids.

**Liquefied Refinery Gases (LRG).** Liquefied petroleum gases fractionated from refinery or still gases. Through compression and/or refrigeration they are retained in the liquid state. The reported categories are ethane/ethylene, propane/propylene, normal butane/butylene, and isobutane. Excludes still gas used for chemical or rubber manufacture which is reported as a petrochemical feedstock and also excludes liquefied petroleum gases intended for blending into gasoline which are reported as gasoline blending components. Liquefied refinery gases are reported for use as petrochemical feedstock or other uses.

**Lubricating Oils.** A substance used to reduce friction between bearing surfaces. Petroleum lubricants may be produced either from distillates or residues. Other substances may be added to impart or improve certain required properties. "Lubricants" includes all grades of lubricating oils from spindle oil to cylinder oil and those used in greases. The three categories include:

**Bright Stock.** A refined, high viscosity lubricating oil base stock that is usually made from a residuum by a treatment such as deasphalting, acid treatment, or solvent extraction.

**Neutral.** A distillate lubricating oil base stock with a viscosity that is usually not above 550 Saybolt Universal Seconds (SUS) at 100 degrees F. It is prepared by a treatment such as hydrofining, acid treatment, or solvent extraction.

**Other.** A lubricating oil base stock used in finished lubricating oils and greases, including black, coastal, and red oils.

**Middle Distillates.** A general classification that includes distillate fuel oil and kerosene.

**Miscellaneous Products.** Includes all finished products not classified elsewhere, e.g., petrolatum, absorption oils, ram-jet fuel, petroleum rocket fuels, synthetic natural gas feedstocks, specialty oils and medicinal oils.

**Motor Gasoline Blending Components.** Finished components in the gasoline range which will be used for blending or compounding into finished motor gasoline. Pool gasoline is included in this category.

**Motor Gasoline (Finished).** A complex mixture of relatively volatile hydrocarbons, with or without small quantities of additives, that have been blended to form a fuel suitable for use in spark-ignition engines. Specifications for motor gasoline, as given in ASTM Specification D439 or Federal Specification VV-G-1690B, include a boiling range of 122-158 degrees F. at the 10-percent point to 365-374 degrees F. at the 90-percent point and a Reid vapor pressure range from 9 to 15 psi. "Motor gasoline" includes finished leaded gasoline, finished unleaded gasoline, and gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

**Finished Leaded Gasoline.** Contains more than 0.05 gram of lead per gallon or more than 0.005 gram of phosphorus per gallon. The actual lead content of any given gallon, however, may vary as a function of the size of the producer and company according to specific Environmental Protection Agency waiver provisions. Premium and regular grades are included, depending on the octane rating. Includes leaded gasohol. Blendstock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

**Finished Unleaded Gasoline.** Contains not more than 0.05 gram of lead per gallon and not more than 0.005 gram of phosphorus per gallon. Premium and regular grades are included, depending on the octane rating. Includes unleaded gasohol. Blend stock is excluded until blending has been completed. Alcohol that is to be used in the blending of gasohol is also excluded.

**Gasohol.** A blend of finished motor gasoline (leaded or unleaded) and alcohol (generally ethanol but sometimes methanol) in which 10 percent or more of the product is alcohol.

**Naphtha-Type Jet Fuel.** A fuel in the heavy naphtha boiling range with an average gravity of 52.8 degrees API and 20 to 90 percent distillation temperatures of 290 degrees to 470 degrees F, meeting Military Specification MIL-T-5624L (Grade JP-4). JP-4 is used for turbojet and turboprop aircraft engines, primarily by the military. Excludes ram-jet and petroleum rocket fuels.

**Natural Gas.** A mixture of hydrocarbons and small quantities of various nonhydrocarbons existing in the gaseous phase or in solution with crude oil in underground reservoirs.

**Natural Gas Field Facility.** A field facility designed to process natural gas produced from more than one lease for the purpose of recovering condensate from a stream of natural gas; however, some field facilities are designed to recover propane, normal butane, pentanes plus, etc., and to control the quality of natural gas to be marketed.

**Natural Gas Plant Liquids.** Natural gas liquids recovered from natural gas in gas processing plants, and in some situations, from natural gas field facilities. Natural gas liquids extracted by fractionators are also included. These liquids are defined according to the published specification of the Gas Processors Association and the American Society for Testing and Materials and are classified as follows: Ethane, propane, normal butane, isobutane, pentanes plus, and other products from natural gas processing plants (i.e. products meeting the standards for finished petroleum products produced at natural gas processing plants, such as finished motor gasoline, finished aviation gasoline, special naphthas, kerosene, distillate fuel oil, and miscellaneous products).

**Natural Gasoline and Isopentane.** A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas, that meets vapor pressure, end-point, and other specifications for natural gasoline set by the Gas Processors Association. Includes isopentane which is a saturated branch-chain hydrocarbon, (C5H12), obtained by fractionation of natural gasoline or isomerization of normal pentane.

**Normal Butane.** See *Butane*.

**OPEC.** The acronym for the Organization of Petroleum Exporting Countries, oil-producing and exporting countries that have organized for the purpose of negotiating with oil companies on matters of oil production, prices and future concession rights. Current members are Algeria, Ecuador, Gabon, Indonesia, Iran, Iraq, Kuwait, Libya, Nigeria, Qatar, Saudi Arabia, United Arab Emirates, and Venezuela.

**Operable Capacity.** The amount of capacity that, at the beginning of the period, is in operation; not in operation, and not under active repairs but capable of being placed in operation within 30 days; or not in operation but under active repairs that can be completed within 90 days. Operable capacity is the sum of the operating and idle capacity and is measured in barrels per calendar day or barrels per stream day.

**Barrels Per Calendar Day.** The maximum number of barrels of input that can be processed in an atmos-

pheric distillation facility during a twenty-four hour period after making allowances for the following limitations:

The capability of downstream facilities to absorb the output of crude oil processing facilities of a given refinery. No reduction is made when a planned distribution of intermediate streams through other than downstream facilities is part of a refinery's normal operation.

The types and grades of inputs to be processed.

The types and grades of products expected to be manufactured.

The environmental constraints associated with refinery operations.

The reduction of capacity for scheduled downtime such as routine inspection, mechanical problems, maintenance, repairs and turnaround.

The reduction of capacity for unscheduled downtime such as mechanical problems, repairs, and slowdowns.

**Barrels Per Stream Day.** The amount a unit can process running at full capacity under optimal crude and product slate conditions.

**Operating Capacity.** The component of operable capacity that is in operation at the beginning of the period.

**Other Hydrocarbons.** Materials received by a refinery and consumed as raw materials. Includes hydrogen, coal tar derivatives, gilsonite, and natural gas received by the refinery for reforming into hydrogen. Natural gas to be used as fuel is excluded.

**Pentanes Plus.** A mixture of hydrocarbons, mostly pentanes and heavier, extracted from natural gas. Includes isopentane, natural gasoline and plant condensate.

**Petrochemical Feedstock Use.** Chemical feedstocks derived from petroleum, principally for the manufacture of chemicals, synthetic rubber and a variety of plastics. The categories reported are "Naphtha-Less than 400 degrees F. end-point" and "Other oils over 400 degrees F. end point."

**Naphtha-Less Than 400 Degrees F. End-Point.** A naphtha with an end point of less than 400 degrees F. that is intended for use as a petrochemical feedstock.

**Other Oils-Over 400 Degrees F. End-Point.** Oils with an end point over 400 degrees F. that is intended for use as a petrochemical feedstock.

**Petroleum Coke.** A residue, the final product of the condensation process in cracking. This product is reported as marketable coke or catalyst coke. The conversion factor is 5 barrels of 42 U.S. gallons per short ton.

**Marketable Coke.** Those grades of coke produced in delayed or fluid cokers which may be recovered as relatively pure carbon. This "green" coke may be sold as is or further purified by calcining.

**Catalyst Coke.** In many catalytic operations (i.e., catalytic cracking) carbon is deposited on the catalyst thus, deactivating the catalyst. The catalyst is reactivated by burning off the carbon, which is used as a fuel in the refinery process. This carbon or coke is not recoverable in a concentrated form.

**Petroleum Products.** Petroleum products are obtained from the processing of crude oil (including lease condensate), natural gas and other hydrocarbon compounds. Petroleum products include unfinished oils, liquefied petroleum gases, pentanes plus, aviation gasoline, motor gasoline, naphtha-type jet fuel, kerosene-type jet fuel, kerosene, distillate fuel oil, residual fuel oil, naphtha less than 400 F. end-point, other oils over 400 F. end-point, special naphthas, lubricants, waxes, petroleum coke, asphalt, road oil, still gas, and miscellaneous products.

**Petroleum Refinery.** An installation that manufacturers finished petroleum products from crude oil, unfinished oils, natural gas liquids, other hydrocarbons, and alcohol.

**Plant Condensate.** One of the natural gas liquids, mostly pentanes and heavier hydrocarbons, recovered and separated as liquids at gas inlet separators or scrubbers in processing plants.

**Primary Stocks.** Stocks of crude oil or petroleum products held in storage at (or in) leases, refineries, natural gas processing plants, pipelines, tankfarms, and bulk terminals that can store at least 50,000 barrels of petroleum products or that can receive petroleum products by tanker, barge, or pipeline. Crude oil that is in transit from Alaska, or that is stored on Federal leases or in the Strategic Petroleum Reserve is included. Primary Stocks excludes stocks of foreign origin that are held in bonded warehouse storage.

**Propane.** A normally gaseous straight-chain hydrocarbon, (C<sub>3</sub>H<sub>8</sub>). It is a colorless paraffinic gas that boils at a temperature of -43.67 degrees F. It is extracted from natural gas or refinery gas streams. It includes all products covered by Gas Processors Association Specifications for commercial propane and HD-5 propane and ASTM Specification D1835.

**Propylene.** An olefinic hydrocarbon, (C<sub>3</sub>H<sub>6</sub>), recovered from refinery processes or petrochemical processes.

**Residual Fuel Oil.** The topped crude of refinery operations which includes No. 5 and No. 6 fuel oils as defined in ASTM Specification D396 and Federal Specification VV-F-815C, Navy Special fuel oil as defined in Military Specification MIL-F-859E including Amendment 2 (NATO Symbol F-77), and Bunker C fuel oil. Residual fuel oil is used for the production of electric power, space heating, vessel bunkering, and various industrial purposes. Imports of residual fuel oil include "Imported Crude Oil Burned as Fuel."

**Road Oil.** Any heavy petroleum oil, including residual asphaltic oil used as a dust palliative and surface treatment on roads and highways. It is generally produced in six grades from 0, the most liquid, to 5, the most viscous.

**Special Naphthas.** All finished products within the gasoline range that are used as paint thinners, cleaners, or solvents. These products are refined to a specified flash point and have a boiling range of 90 degrees to 220 degrees F. "Special naphthas" includes all commercial hexane and cleaning solvents conforming to ASTM Specification D1836 and D484, respectively. Naphthas to be blended or marketed as motor gasoline or aviation gasoline or that are to be used as petrochemical and synthetic natural gas (SNG) feedstocks are excluded.

**Steam (Purchased).** Steam, purchased for use by a refinery, that was not generated from within the refinery complex.

**Still Gas (Refinery Gas).** Any form or mixture of gas produced in refineries by distillation, cracking, reforming, and other processes. The principal constituents are methane, ethane, ethylene, normal butane, butylene, propane, propylene, etc. Still gas is reported for petrochemical feedstock use and/or refinery fuel use.

**Petrochemical Feedstock Use.** Includes all refinery streams which are used by chemical or rubber manufacturing operations for further processing, less the amount of such streams returned to the source refinery. Finished petrochemical products are not included. For example, polyethylene, butadiene, etc. are considered petrochemical products; therefore, only their feedstock equivalents are included.

**Fuel Use.** All other still gas.

**Strategic Petroleum Reserve (SPR).** Petroleum stocks maintained by the Federal Government for use during periods of major supply interruption.

**Thermal Cracking.** A refining process in which heat and pressure are used to break down, rearrange, or combine hydrocarbon molecules. Thermal cracking is used to increase the yield of gasoline obtainable from crude oil.

**Unfinished Oils.** Includes all oils requiring further processing, except those requiring only mechanical blending.

**Unfractionated Streams.** Mixtures of unsegregated natural gas liquid components excluding those in plant condensate. This product is extracted from natural gas.

**Vacuum Distillation.** Distillation under reduced pressure (less the atmospheric) which lowers the boiling temperature of the liquid being distilled. This technique with its relatively low temperatures prevents cracking or decomposition of the charge stock.

**Visbreaking.** A thermal cracking process in which heavy vacuum-still bottoms produced on the primary distillation unit are cracked to increase production of distillate products.

**Wax.** A solid or semi-solid material derived from petroleum distillates or residues by such treatments as chilling, precipitating with a solvent, or de-oiling. It is light-colored, more-or-less translucent crystalline mass, slightly greasy to the touch, consisting of a mixture of solid hydrocarbons in which the paraffin series pre-

dominates. Includes all marketable wax whether crude scale or fully refined. The three grades included are microcrystalline, crystalline-fully refined, and crystalline-other. The conversion factor is 280 pounds per 42-U.S. gallon barrel.

**Microcrystalline Wax.** Wax extracted from certain petroleum residues having a finer and less apparent crystalline structure than paraffin wax and having the following physical characteristics:

Penetration at 77 degrees F. (D1321)-60 maximum. Viscosity at 210 degrees F. in Saybolt Universal Seconds (SUS). (D88)-60 SUS (10.22 centistokes) minimum to 150 SUS (31.8 centistokes) maximum. Oil content (D721)-5 percent minimum.

**Crystalline-Fully Refined Wax.** A light-colored paraffin wax having the following characteristics:

Viscosity at 210 degrees F. (D88)-59.9 SUS (10.18 centistokes) maximum. Oil Content (D721)-0.5 percent maximum. Other +20 color, Saybolt minimum.

**Crystalline-Other Wax.** A paraffin wax having the following characteristics:

Viscosity at 210 degrees F. (D88)-59.9 SUS (10.18 centistokes) maximum. Oil Content (D721)-0.51 percent minimum to 15 percent maximum.

**Western Hemisphere.** That half of the earth that includes North and South America and adjacent islands.

# Bureau of Mines Petroleum Refining Districts and PAD Districts

The following are the Bureau of Mines petroleum refining districts which make up the PAD districts:

## PAD District I

**East Coast:** District of Columbia and the States of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Florida, and the following counties of the State of New York: Cayuga, Tompkins, Chemung and all counties east and north thereof. Also the following counties in the State of Pennsylvania: Bradford, Sullivan, Columbia, Montour, Northumberland, Dauphin, York, and all counties east thereof.

**Appalachian #1:** The State of West Virginia and those parts of the States of Pennsylvania and New York not included in the East Coast District.

## PAD District II

**Appalachian #2:** The following counties of the State of Ohio: Erie, Huron, Crawford, Marion, Delaware, Franklin, Pickaway, Ross, Pike, Scioto, and all counties east thereof.

**Indiana—Illinois—Kentucky:** The States of Indiana, Illinois, Kentucky, Tennessee, Michigan, and that part of the State of Ohio not included in the Appalachian District.

**Minnesota—Wisconsin—North and South Dakota:** The States of Minnesota, Wisconsin, North Dakota, and South Dakota.

**Oklahoma—Kansas—Missouri:** The States of Oklahoma, Kansas, Missouri, Nebraska, and Iowa.

## PAD District III

**Texas Inland:** The State of Texas except the Texas Gulf Coast District.

**Texas Gulf Coast:** The following counties of the State of Texas: Newton, Orange, Jefferson, Jasper, Tyler, Hardin, Liberty, Chambers, Polk, San Jacinto, Montgomery, Harris, Galveston, Waller, Fort Bend, Brazoria, Wharton, Matagorda, Jackson, Victoria, Calhoun, Refugio, Aransas, San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron.

**Louisiana Gulf Coast:** The following Parishes of the State of Louisiana: Vernon, Rapides, Avoyelles, Pointe Coupee, West Feliciana, East Feliciana, Saint Helena, Tangipahoa, Washington, and all Parishes south thereof. Also the following counties of the State of Mississippi: Pearl River, Stone, George, Hancock, Harrison, and Jackson. Also the following counties of the State of Alabama: Mobile and Baldwin.

**North Louisiana—Arkansas:** The State of Arkansas and those parts of the States of Louisiana, Mississippi, and Alabama not included in the Louisiana Gulf Coast District.

**New Mexico:** The State of New Mexico.

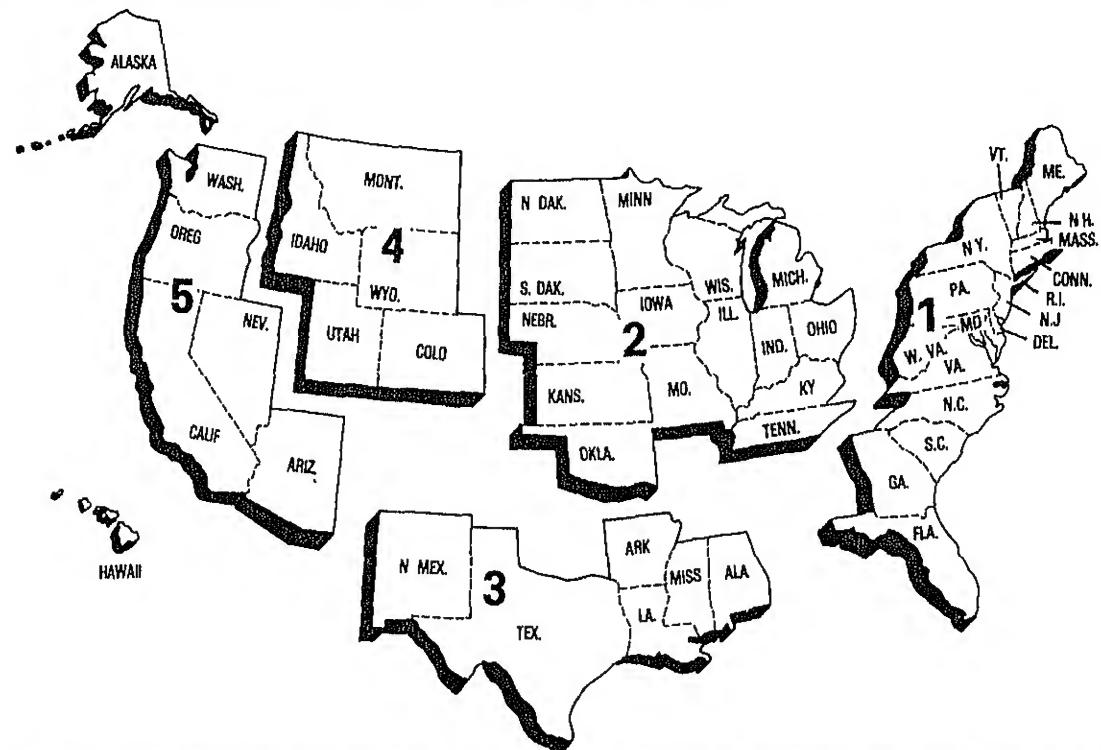
## PAD District IV

**Rocky Mountain:** The States of Montana, Idaho, Wyoming, Utah, and Colorado.

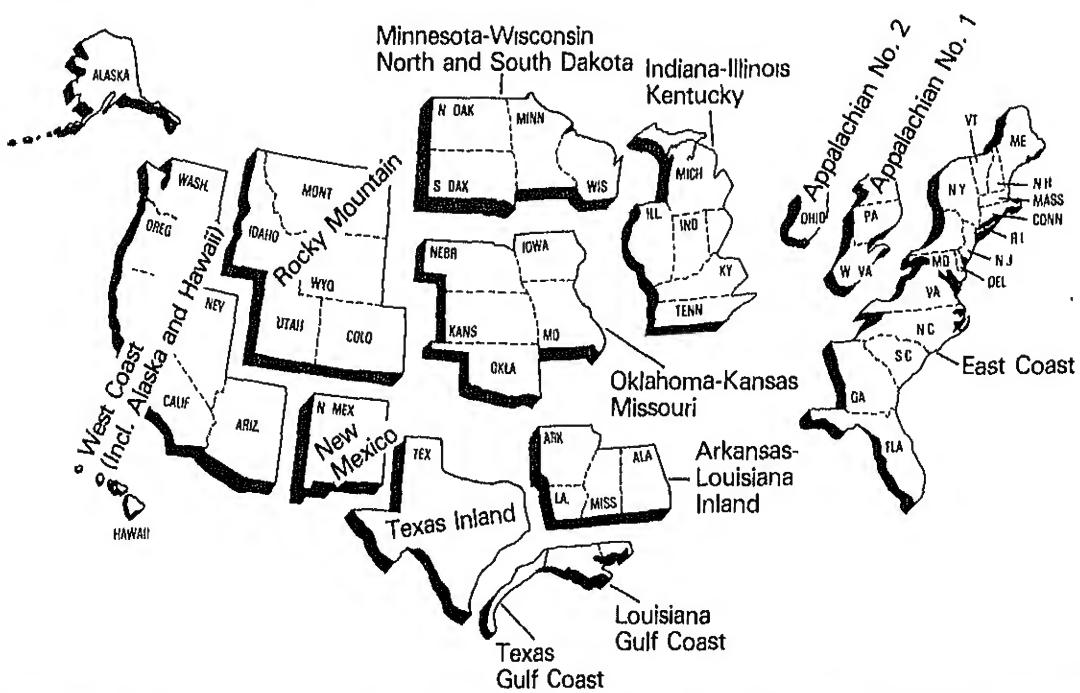
## PAD District V

**West Coast:** The States of Washington, Oregon, California, Nevada, Arizona, Alaska, and Hawaii.

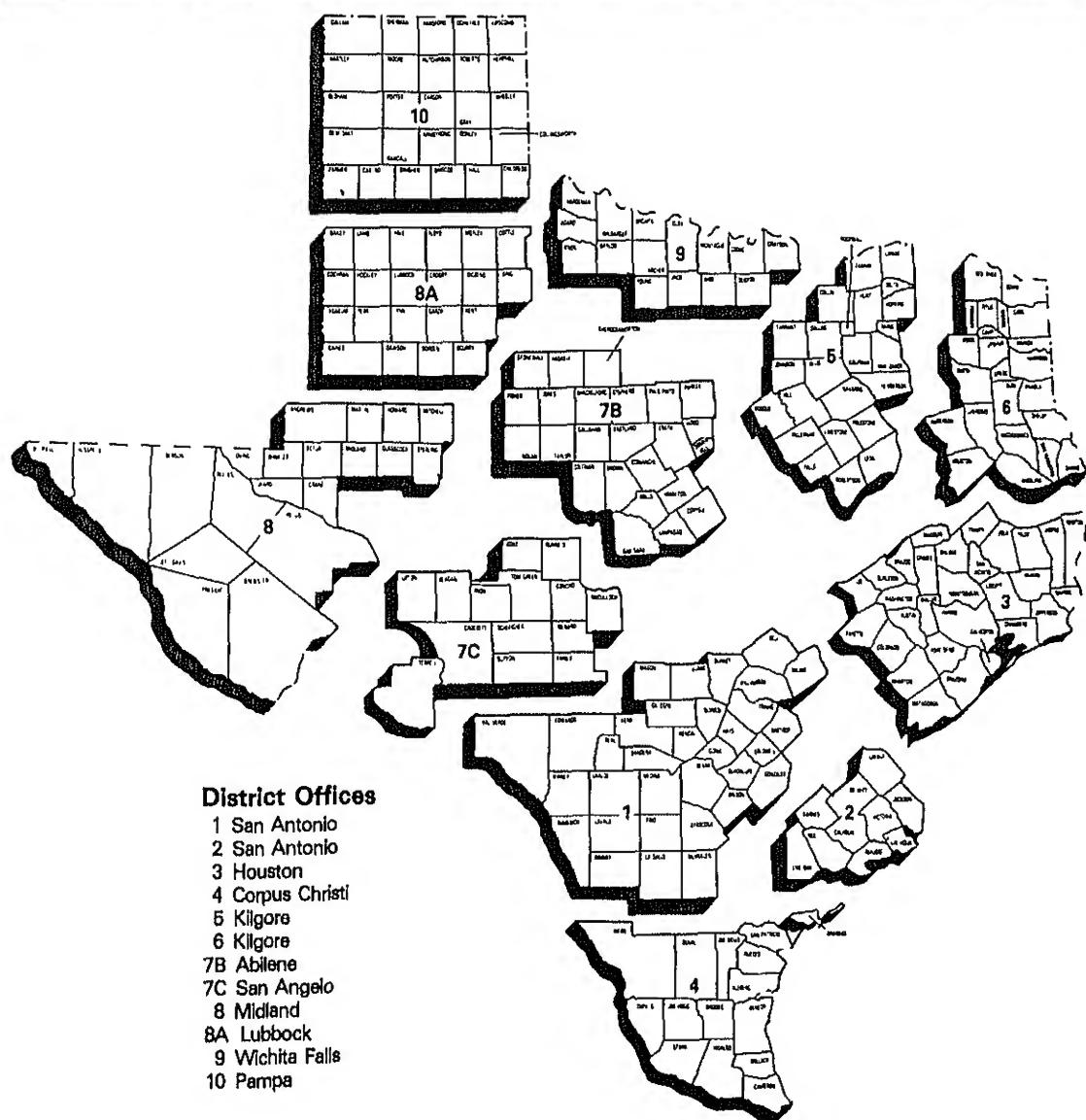
## Petroleum Administration for Defense (PAD) Districts



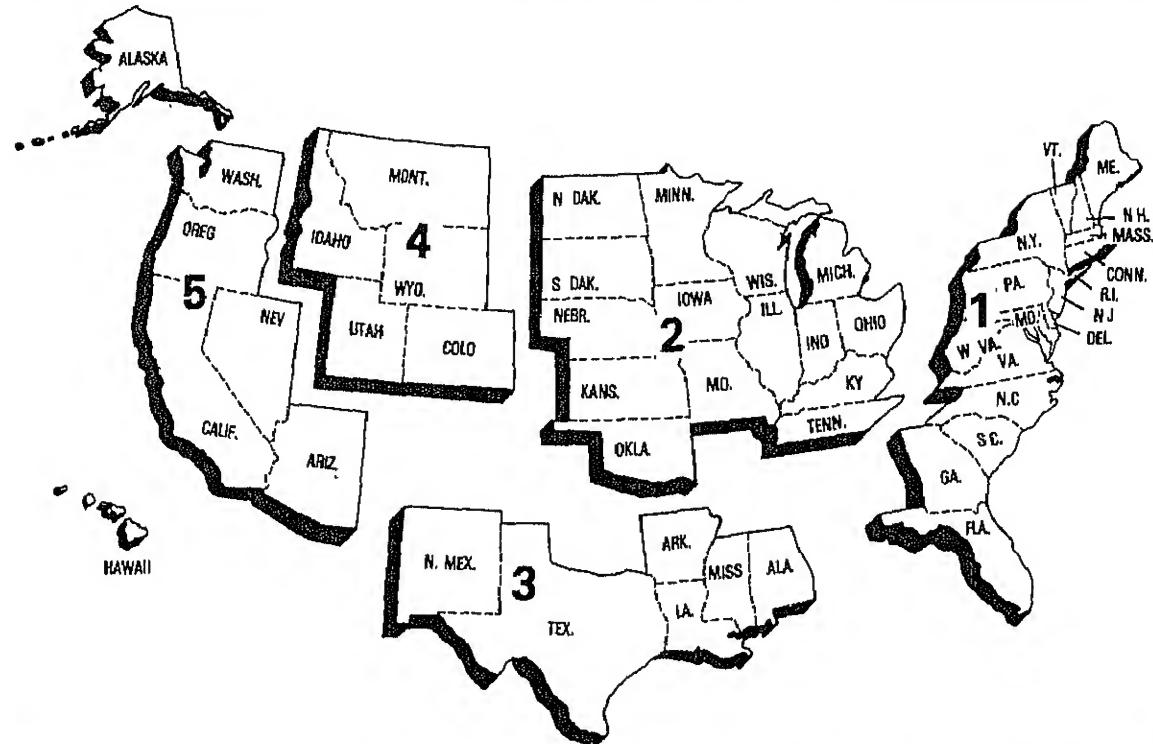
## Bureau of Mines Refining Districts



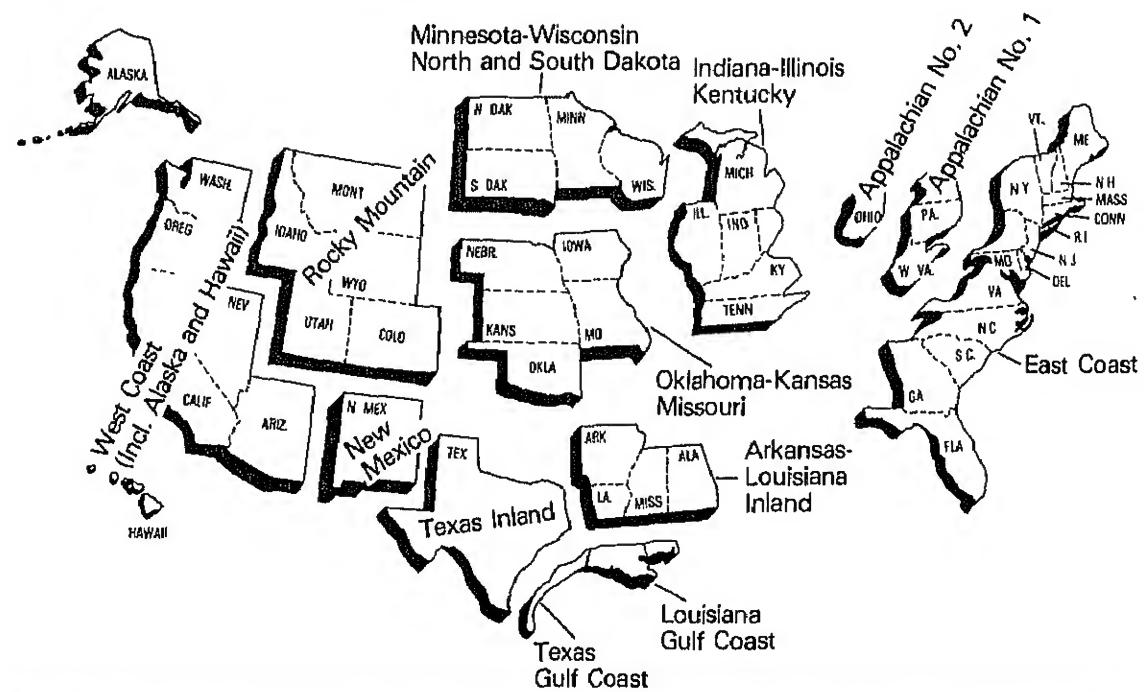
## District Map Oil and Gas Division Railroad Commission of Texas



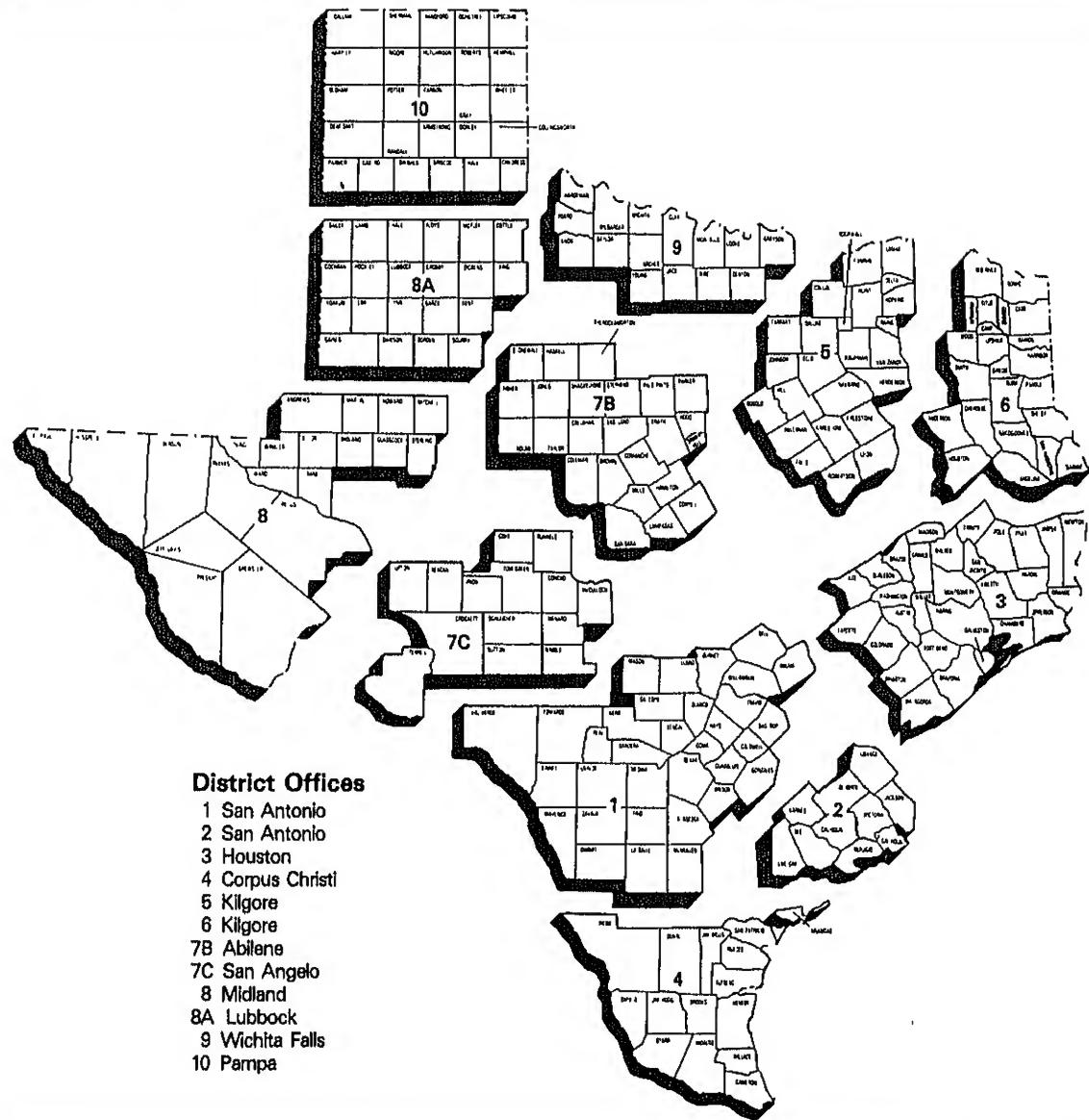
## Petroleum Administration for Defense (PAD) Districts



## Bureau of Mines Refining Districts

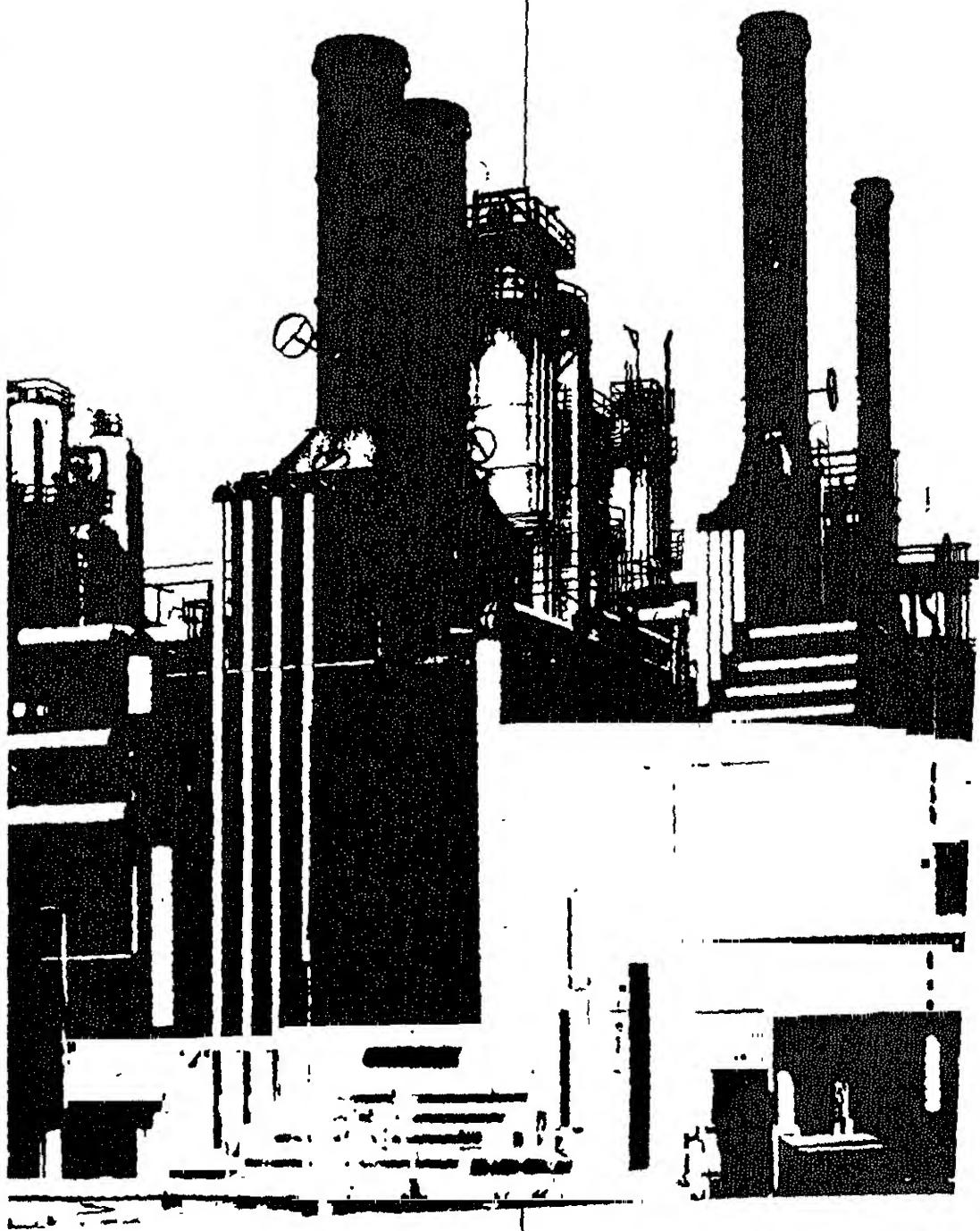


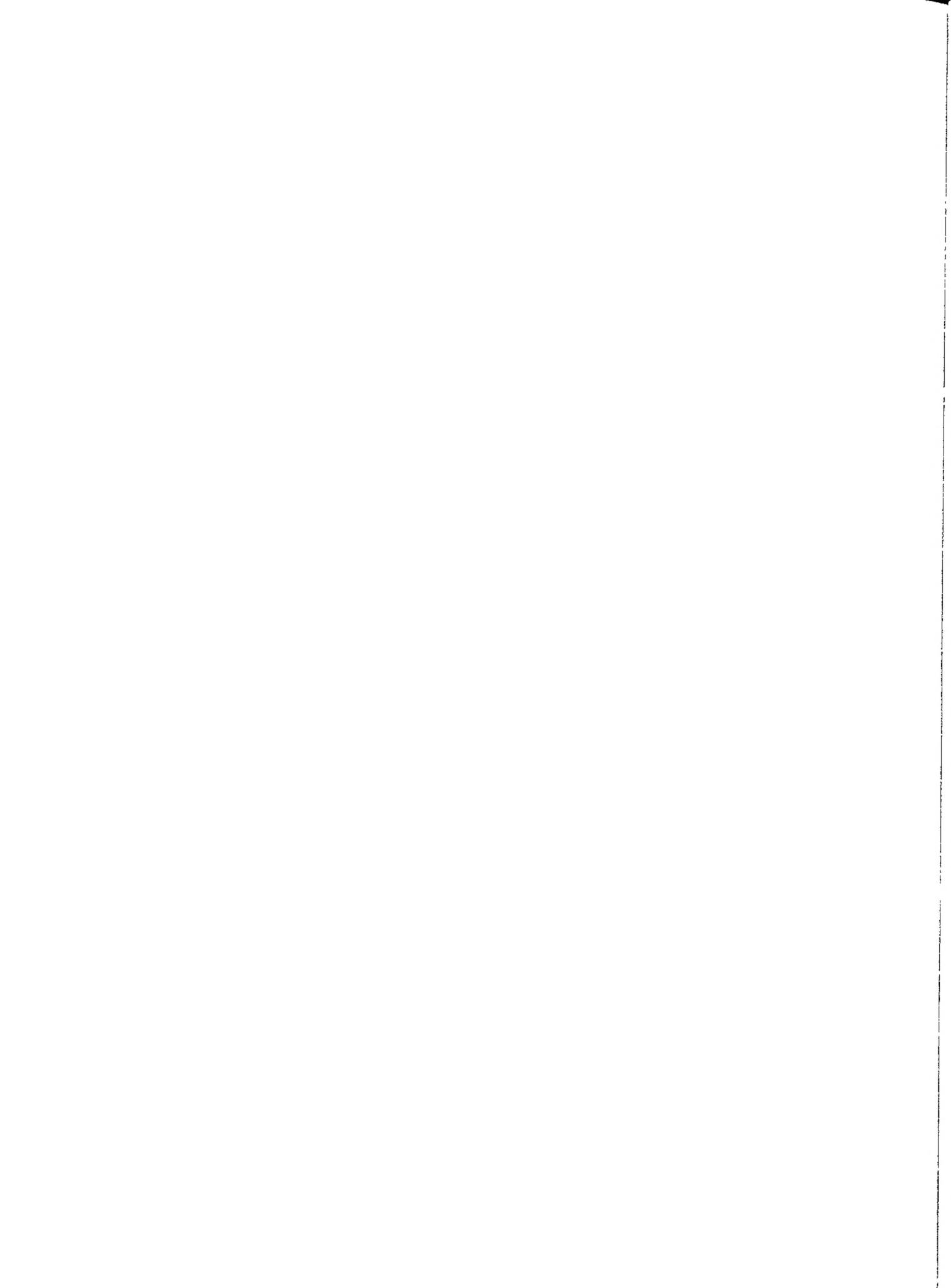
## District Map Oil and Gas Division Railroad Commission of Texas





## **Explanatory Notes**





# Explanatory Notes

## Note 1: Data Collection Methodology

### Background

Beginning in January 1983, the Energy Information Administration (EIA) unified its petroleum supply data collection activities into the Petroleum Supply Reporting System (PSRS). The PSRS represents a family of data collection survey forms, data processing systems and publication systems that have been consolidated to achieve comparability and consistency throughout. The primary focus of the consolidation has been to revise the weekly and monthly survey reporting forms to assure consistency in form layout, preparation instructions, and definitions. As a result, a new set of survey forms were implemented in January 1983. The following are the new form numbers and their corresponding predecessor forms:

New Form Number	Name	Old Form Number
EIA-800	Weekly Refinery Report	EIA-161
EIA-801	Weekly Bulk Terminal Report	EIA-162
EIA-802	Weekly Product Pipeline Report	EIA-163
EIA-803	Weekly Crude Oil Stocks Report	EIA-164
EIA-804	Weekly Imports Report	EIA-165
EIA-805	Weekly Shipments from Puerto Rico to the United States Report	—
EIA-810	Monthly Refinery Report	EIA-87
EIA-811	Monthly Bulk Terminal Report	EIA-88
EIA-812	Monthly Product Pipeline Report	EIA-89
EIA-813	Monthly Crude Oil Report	EIA-90
ERA-60	Monthly Imports Report	ERA-60
EIA-815	Monthly Shipments from Puerto Rico to the United States Report	FEA-P133-M-0
EIA-816	Monthly Natural Gas Liquids Report	EIA-64
EIA-817	Monthly Tanker and Barge Movement Report	EIA-170

Forms EIA-800 through 805 comprise the Weekly Petroleum Supply Reporting System (WPSRS). This system is designed to collect basic refinery operations and product stock data for major products on a weekly basis. Data from the WPSRS are published in the *Weekly Petroleum Status Report (WPSR)* and are also used to calculate the preliminary statistics in the "Summary Statistics" section of the *Petroleum Supply Monthly*

(PSM). A description of the WPSRS survey forms follows in Note 1.1.

Forms EIA-810-813, 815-817 and ERA-60 comprise the Monthly Petroleum Supply Reporting System (MPSRS). These surveys collect detailed refinery operations data, refinery, bulk terminal and pipeline stocks data, crude oil and petroleum product imports data and movements of petroleum products and crude oil between PAD Districts data. These surveys are the primary source of data for the "Summary Statistics" and "Detailed Statistics" sections of the PSM. A description of MPSRS survey forms follows in Note 1.2.

Data are also obtained in magnetic tape form from the Bureau of the Census on a monthly basis. These tapes contain aggregated import and export statistics that are used in the preparation of the PSM. A description of the Census data follows in Note 1.3.

### Note 1.1: Weekly Petroleum Supply Reporting System (WPSRS)

#### Background

The EIA first began publishing weekly petroleum supply statistics in April 1979 in response to the Iranian oil crisis. Initially, the published data were taken from the American Petroleum Institute (API) *Weekly Statistical Bulletin*. However, in January 1980 the EIA began to publish weekly statistics from its own surveys, with the exception of imports statistics which the EIA did not begin collecting until June 1980.

The weekly surveys collect data comparable to those collected on a monthly basis. Selected petroleum companies report weekly data to the EIA on crude oil and petroleum product stocks, refinery inputs and production, and crude oil and petroleum product imports. On Forms EIA-800 through EIA-803, companies report data on a custody basis. On the Form EIA-804, the importer of record reports each shipment entering the United States. On Form EIA-805, a company shipping unfinished oils and finished petroleum products into the United States from Puerto Rico reports each shipment. Current weekly data and the most recent monthly data are used to estimate the totals that are published in the *Weekly Petroleum Status Report*.

#### Sample Frame

The sample of companies that report weekly is selected from the universe of companies that report on the comparable monthly surveys. Sampled companies report data only for facilities in the 50 States and District of Columbia.

The sample for each survey is taken from the following universe:

**EIA-800:** Based on the EIA-810 universe, which includes all petroleum refineries in the United States and

its territories, industrial facilities that have crude oil distillation capacity and produce some refined petroleum products, and plants that produce finished motor gasoline through mechanical blending. The selected sample size is 215.

**EIA-801:** Based on the EIA-811 universe, which includes all bulk terminal facilities in the United States and its territories that have either a total bulk storage capacity of 50,000 barrels or more, or that receive petroleum products by tanker, barge, or pipeline. The selected sample size is 93.

**EIA-802:** Based on the EIA-812 universe, which includes all petroleum product pipeline companies in the United States and its territories that transport refined petroleum products, including Interstate, Intrastate and Intracompany pipeline movements. Pipeline companies that transport only natural gas liquids are not included in the EIA-802 frame. Only those pipeline companies that transport products covered in the weekly survey are included. The selected sample size is 65.

**EIA-803:** Based on the EIA-813 universe, which consists of all companies which carry or store crude oil of 1,000 barrels or more in the 50 States, and the District of Columbia. Included are gathering and trunk pipeline companies (including Interstate, Intrastate, and Intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

**EIA-804:** Based on the EIA-80 universe, which includes all importers of record of crude oil and petroleum products into the United States and Puerto Rico. The selected sample size is 65.

**EIA-805:** Based on the EIA-815 universe, which includes all shippers of unfinished oils and petroleum products into the United States from Puerto Rico. Four companies report.

### **Sampling Method**

The cut-off method is the sampling procedure used for all weekly surveys except the EIA-802, which uses the monthly universe in its entirety. In the cut-off method, companies are ranked from largest to smallest on the basis of the quantities reported during some previous 12-month period. Companies are chosen for the sampling, beginning with the largest and adding companies until the total sample covers 90 percent of the total for the previous time period for each product published in the *Weekly Petroleum Status Report*.

### **Collection Methods**

Data are collected by mail, mailgram, telephone, Telex, and Telefax on a weekly basis. The report period closes each Friday at 7 a.m. All canvassed firms and terminal operations companies must file by 5 p.m. on the following Monday.

### **Estimation and Imputation**

After company reports have been checked and entered into the weekly data base, weekly totals for given products are estimated by using the following formula.

The total reported by all companies for the most recent month ( $M_t$ ) is divided by the amount reported by the sample of companies for the most recent month ( $M_s$ ). The result is multiplied by the amount reported by the sample of companies for the current week ( $W_s$ ). The answer,  $W_t$ , is an estimate of the amount that would have been reported by all companies for the current week if all companies reported each week.

$$W_t = \frac{M_t}{M_s} (W_s)$$

This procedure is used to estimate total weekly inputs to refineries and production.

To estimate stocks of finished products, the preceding procedure is followed separately for refineries, bulk terminals, and pipelines. Total estimates are formed by summing over establishment types.

Weekly imports data are highly variable on a company-by-company basis or a week-by-week basis. Therefore, an exponentially smoothed ratio has been developed. The estimate of weekly imports is the sum of the smoothed ratio multiplied by the weekly values and estimates for shipments from Puerto Rico. Imports of other oils includes an adjustment from Census data for unlicensed products because of coverage differences between the monthly imports data and Census data.

Explicit imputation is done for companies which do not respond in a given week. The imputed values are exponentially smoothed means of recent reports from the specific company.

### **Response Rates**

The response rate for the published estimates is usually between 95 and 98 percent.

## **Note 1.2: Monthly Petroleum Supply Reporting System (MPSRS)**

### **Background**

The MPSRS was implemented in January 1983 as the result of an extensive effort to integrate the collection and processing of petroleum supply data that have been collected on other survey forms for many years. The collection of monthly petroleum supply statistics began as early as 1918 when the Bureau of Mines (BOM) began collecting data on refinery operations and crude oil stocks and movements. The collection systems

were further expanded to include natural gas plant liquids production and storage in 1925, imports of crude oil and petroleum products and storage and movements of petroleum products in 1959, and tanker and barge movements of crude oil and petroleum products in 1964. Since their inception, each survey has undergone numerous changes, but the MPSRS is the first effort to make them all consistent and comparable.

### Respondent Frame

**EIA-810:** All petroleum refineries and plants that produce finished motor gasoline through the mechanical blending of liquids which are operated or controlled in the 50 States, the District of Columbia, Puerto Rico, the Virgin Islands, the Hawaiian Foreign Trade Zone, and Guam. Approximately 313 respondents report on the EIA-810.

**EIA-811:** All bulk terminal facilities in the 50 States and the District of Columbia, Puerto Rico, and the Virgin Islands that (a) have a total bulk storage capacity of 50,000 barrels or more and/or (b) receive petroleum products by tanker, barge, or pipeline, regardless of ownership of the material. Approximately 328 respondents report on the EIA-811.

**EIA-812:** All products pipeline companies that carry petroleum products (including Interstate, Intrastate and Intracompany pipelines) in the 50 States and the District of Columbia. Approximately 94 respondents report on the EIA-812.

**EIA-813:** All companies which carry or store crude oil of 1,000 barrels or more in the 50 States, and the District of Columbia. Included are gathering and trunk pipeline companies (including Interstate, Intrastate, and Intracompany pipelines), crude oil producers, terminal operators, storers of crude oil, and companies transporting Alaskan crude oil by water.

**EIA-815:** All licensed importers and importers of record shipping petroleum products from Puerto Rico into the 50 States and the District of Columbia.

Import data from the ERA-60 and EIA-815 are integrated into the import statistics reported in the PSM.

**EIA-816:** All operators of facilities designed to extract liquid hydrocarbons from natural gas stream (natural gas processing plants) or to separate a hydrocarbon stream into its component products, i.e., propane, butane, natural gasoline, etc. (fractionators). Approximately 990 respondents report on the EIA-816.

**EIA-817:** All known companies and plants that have custody of crude oil and petroleum products transported by tanker and barge between PAD Districts or between PAD Districts and the Panama Canal. There are about 50 respondents.

**ERA-60:** All licensed importers and importers of record importing crude oil and petroleum products into the

United States and Puerto Rico. The respondent universe consisted of approximately 1,100 firms as of July 31, 1982. However, only a selected 250 importers must report each month regardless of import activity. All others must report only for a month in which they actually had imports. The respondent universe for this survey is updated whenever an import license is granted by the Office of Oil Imports of the ERA.

EIA utilizes a number of sources and methods to maintain the survey respondent lists. On a regular basis, survey managers review industry publications such as the *Oil and Gas Journal* and *LP Gas Almanac* for information on facilities or companies going into operation or closing down. These are augmented by articles in newspapers, letters from respondents indicating changes in status and information received from survey systems operated by other offices.

Periodically an extensive survey study is conducted to completely refresh the frames. This involves consolidating information from every known source including State agencies, federal agencies (e.g., EPA, Corps of Engineers, Census Bureau, etc.), and private industry directories. The effort also includes the evaluation of the impact of potential frame changes on the historical time series of data published from these respondents. The results of this frame study are usually implemented in January to provide a full year under the same frame.

### Collection Methods

The data for all of the MPSRS surveys are collected monthly. Completed forms are required to be postmarked by the 20th day following the end of the report month, with the exception of the EIA-815 and ERA-60 which are due 15 work days following the end of the report month. Telephone follow-up calls are made to non-respondents prior to the publication deadline, for their data. An automated mailing list is maintained and is used to monitor receipt of the forms.

### Imputing Missing Data

Imputation is performed only for nonresponding companies that submitted reports the previous month. For such companies, previous monthly values are used for current values. The previous month's ending stocks value is used for both the current month's beginning stocks and the current month's ending stocks. In the event that the previous month's data were estimated, the respondent is contacted and requested to submit estimates, if necessary, to be followed by submission of actual data. Data for nonrespondents on the EIA-815 and 817, and ERA-60 are not imputed.

### Response Rates

As of the filing deadline, the response rates of the EIA-810 through EIA-813 respondents is over 90 per-

cent. The response rate for the EIA-816 is over 85 percent and for the EIA-817 it is 98 percent. All companies that have not responded are contacted by telephone. Although data are taken by telephone to expedite processing, a certified submission is still required. Names of companies that fail to file for 2 consecutive months are forwarded for further noncompliance action.

In July 1983, the ERA-60 survey had a response rate of 99.9 percent by the filing deadline. The universe was 1,100 firms at that time. (Because this is a dynamic survey, the universe is constantly changing.) Standard follow-up of nonrespondents is made to insure that all reports are received, since data are not imputed for nonrespondents. In addition, response is cross-checked with response on the Petroleum Licensing Decremtalation System (PLDS), a listing of each month's importers. The response rate is generally 98 to 99 percent by the time the data are first published.

### **Note 1.3: Census Import (IM-145) and Export (EM-522 and EM-594) Data**

#### **Background**

Each month the EIA purchases magnetic tapes of aggregated import and export statistics from the Bureau of the Census. These data provide the only source of export statistics and are used to augment the import data collected by the EIA. Export statistics and import data from the Census tapes on liquefied petroleum gases and bonded ship bunkers are published in the PSM.

#### **Import Statistics (IM-145)**

##### **Coverage**

The import statistics reflect both government and non-government imports of merchandise from foreign countries into the U.S. Customs territory (the 50 States, the District of Columbia, and Puerto Rico), without regard to whether or not a commercial transaction is involved. In general, the statistics record the physical movement of merchandise into the United States from foreign countries, with the exception of the following types of transactions that are excluded from the statistics:

1. Merchandise in-transit through the United States, when documented with Customs as an in-transit movement.
2. Shipments from anywhere to U.S. possessions and shipments from U.S. possessions to the United States. (U.S. possessions include Puerto Rico, the Virgin Islands, Guam, and American Samoa.)
3. U.S. merchandise that was held in foreign countries by the U.S. Armed Forces and is returned to the United States for the use of the Armed Forces.

#### **Source of Import Information**

The official U.S. import statistics are compiled by the Bureau of the Census from copies of the import entry and warehouse withdrawal forms that importers are required by law to file with Customs officials (Customs Forms 7501, 7505, and 7506).

Imported petroleum is reported as *Imports for Consumption*. Imports for consumption are a combination of entries for immediate consumption and withdrawals from warehouses for consumption. With certain exceptions as indicated above, these data generally reflect the total of commodities entered into U.S. consumption channels.

#### **Country and Area of Origin**

The country reported in the statistics as the country of origin is defined as the country where the merchandise was grown, mined, or manufactured. In instances where the country of origin cannot be determined, the transactions are credited to the country of shipment.

#### **Export Statistics (EM-522 and EM-594)**

##### **Coverage**

The export statistics reflect both government and non-government exports of domestic and foreign merchandise from the U.S. Customs territory (the 50 States, the District of Columbia, and Puerto Rico) to foreign countries, without regard to whether or not the exportation involves a commercial transaction. In general, the statistics record the physical movement of merchandise out of the United States to foreign countries, with the exception of the following types of transactions:

1. All shipments from U.S. possessions, regardless of whether the shipments are sent to the United States, to other U.S. possessions, or to foreign countries.
2. Merchandise shipped in transit through the United States from one foreign country to another, when documented as such with U.S. Customs.
3. Bunker fuels and other supplies and equipment for use on departing vessels, planes, or other carriers engaged in foreign trade.

#### **Source of Export Information**

The official U.S. export statistics are compiled by the Bureau of the Census primarily from copies of Shipper's Export Declarations. Exporters are required to file Shipper's Export Declarations with Customs officials. The only exceptions are those exporters who have been authorized to submit data directly to the Bureau of Census on magnetic tape, punched cards, or monthly Shipper's Summary Export Declarations.

## Country and Area of Destination

The country of destination is defined as the country of ultimate destination or the country where the goods are to be consumed, further processed, or manufactured, as known to the shipper at the time of exportation. If the shipper does not know the country of ultimate destination, the shipment is credited to the last country to which the shipper knows that the merchandise will be shipped in the same form as it was when exported.

## Note 2: Supply

The components of petroleum supply are field production, refinery production, imports, and stock withdrawal or addition:

**Field Production** is the sum of crude oil production (including lease condensate), natural gas processing plant production, and new supply (field production) of other liquids used by refineries.

Crude oil production is estimated based on data received from State conservation and revenue agencies. For further explanation, see Explanatory Note 3.

Field production of natural gas plant liquids (NGPL), including finished petroleum products, is reported monthly on survey Form EIA-816, *Monthly Natural Gas Liquids Report*. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month. For survey description and other detail, see Explanatory Note 1.2.

**Refinery Production** of petroleum products is reported monthly on survey Form EIA-810, *Monthly Refinery Report*. Published production of these products equals refinery production minus refinery input. Refinery production of unfinished oils and of motor and aviation gasoline blending components appears on a net basis under refinery input. Negative production will occur when the amount of a product produced during the month is less than the amount of that same product that is reprocessed (input) or reclassified to become another product during the same month.

gases (LPG), where the Census data show a much higher level of imports than EIA data. This occurs because the ERA-60 respondent frame was built by monitoring importers of licensed products and LPGs are not licensed products. Therefore, respondents that import only LPGs have not been identified, and do not report these imports to the Department of Energy. Since these importers are required to file form 7501 with the U.S. Customs Service, EIA obtains data on imports of LPGs from Census Tabulation IM-145. Additional data taken from the IM-145 are relatively small quantities of naphtha- and kerosene-type jet fuels, distillate fuel oils, and residual fuel oils withdrawn from bonded storage for use in international trade. Even though these duty-free fuels are stored on United States shores, they did not enter the United States for domestic consumption and therefore are not included in the ERA-60 reporting system.

**Stock Withdrawal (+) or Addition (-)** is calculated by subtracting stocks at the end of the month from stocks at the beginning of the same month. (Note: The beginning stocks of one month are equal to the ending stocks of the previous month.) A positive result (+) would represent a withdrawal from stocks and an increase in petroleum supplies distributed for domestic consumption. A negative result (-) would represent a buildup of stocks and a reduction in the amount of petroleum supplies distributed for domestic consumption. For a description of survey forms used to make stock withdrawal or addition calculations see Explanatory Note 5.

**Unaccounted-for Crude Oil** is a balancing item that represents the difference between crude oil supply and disposition.

Crude oil supply is the sum of field production, imports and stock withdrawals or additions. Crude oil disposition is the sum of exports, refinery input, losses and product supplied. Unaccounted-for crude oil is calculated by subtracting crude oil supplies from crude oil disposition. A positive result indicates that refiners and exporters reported use of more crude oil than was reported to have been available to them. (This occurs, for example, when imports are undercounted due to late reporting or other problems.) A negative result would indicate that more crude oil was reported to have been supplied to refiners and exporters than they reported used.

## Note 3: Domestic Crude Oil Production

Data for the Crude Oil Production System (COPS) are reported to the Department of Energy by each of the State conservation agencies, which collect crude oil production values for tax purposes. The U.S. Geological Survey reports the volume of crude oil that is produced offshore in Federally-owned waters. With the exception of ten State conservation agencies, all of these reports are received monthly. After each calendar year, these monthly numbers are updated using the annual reports

Imports of crude oil and petroleum products are reported monthly on Form ERA-60, *Report of Oil Imports into the United States and Puerto Rico*, and Form EIA-815, *Shipments of Refined Products (Including Unfinished Oils) from Puerto Rico to the United States*. In addition, the Census Bureau Tabulation IM-145 summarizes import data from Customs import declarations reported on Customs Forms 7501, 7505, and 7506. The most prominent difference between the EIA and Census systems appears in imports of liquefied petroleum

from the State conservation agencies and the U.S. Geological Survey. The ten States that do not report monthly values are Indiana, Kentucky, Missouri, Arkansas, Utah, New York, Ohio, Pennsylvania, West Virginia, and Wyoming. Monthly values are estimated for these States using the individual linear trends of their historical annual crude oil production values.

There is a time lag of approximately 4 months between the end of the reporting month and the time when the monthly COPS information becomes available. Table 11 of this publication provides information on crude oil production for the most recent month for which COPS values are available. In order to present more timely crude oil production values, the EIA's Dallas Field Office prepares a series of State level estimates which are based on historical production patterns and are summed to obtain the monthly crude oil production values shown in the summary statistics of this publication.

The individual State level estimates are either exponential curve fitted projections based on recent data or are constant level projections based on the average production rate during a recent time period. In some cases, adjustments are made to these estimates based on additional information on expected changes in production rates supplied by a State agency, a trade association, or an individual field operator.

#### Note 4: Disposition

The components of petroleum disposition are crude oil losses, refinery inputs, exports, and products supplied for domestic consumption.

**Crude Oil Losses** is the sum of crude oil losses at refineries. Crude oil losses at refineries are reported on Form EIA-810, *Refinery Report*.

**Refinery Inputs** of crude oil, natural gas plant liquids, and other liquids are reported monthly on survey Form EIA-810, *Monthly Refinery Report*. Published inputs of unfinished oils and of motor and aviation gasoline blending components equal refinery input minus refinery output. Refinery inputs of finished petroleum products are reported on a net basis under refinery production.

**Exports** of crude oil and petroleum products are compiled from Census Bureau tabulations EM-522 and EM-594. Exports include crude oil shipments to Puerto Rico, the Virgin Islands, and the Hawaiian Foreign Trade Zone, which are obtained from refinery receipts reported on Form EIA-810, by refineries located in these places.

**Product Supplied** for each product is calculated by summing field production plus refinery production, plus imports, plus stock withdrawal or minus stock addition, minus crude oil losses (plus net receipts when calculated on a PAD District basis), minus re-

finery input, minus exports. This formula ensures that total disposition equals total supply.

**Products supplied** indicates those quantities of petroleum products supplied for domestic consumption. Occasionally, the result for a product is negative because total disposition of that product exceeds total supply. Negative product supplied may occur for a number of reasons: (1) product reclassification has not been reported, (2) data were misreported or reported late, (3) in the case of calculations on a PAD District basis, the figure for net receipts was inaccurate because the coverage of interdistrict movements was incomplete.

Product supplied for crude oil is the sum of crude oil burned on leases and by pipelines as fuel oil. These data are reported on Form EIA-813, *Monthly Crude Oil Report*. Prior to January 1983, crude oil burned on leases and by pipelines as fuel oil were reported as either distillate or residual fuel oil and included in product supplied for these products.

#### Note 5: Stocks

Primary stocks of crude oil are the sum of ending stocks reported monthly on Form EIA-810, *Monthly Refinery Report*, and on Form EIA-813, *Monthly Crude Oil Report*. Crude oil held in the Strategic Petroleum Reserve is included unless otherwise noted. Alaskan crude oil in transit is also included. Stocks of crude oil are also reported weekly on Form EIA-800, *Weekly Refinery Report*, and on Form EIA-803, *Weekly Crude Oil Stocks Report*. Primary stocks of petroleum products are summed from data reported on Form EIA-816, *Monthly Natural Gas Liquids Report*, Form EIA-810, *Monthly Refinery Report*, Form EIA-811, *Monthly Bulk Terminal Report*, and on Form EIA-812, *Monthly Product Pipeline Report*. Primary stocks of petroleum products do not include either secondary stocks held by dealers and jobbers or stocks held by consumers. Petroleum product stocks are also reported weekly on Form EIA-800, *Weekly Refinery Report*, Form EIA-801, *Weekly Bulk Terminal Report*, and Form EIA-802, *Weekly Crude Oil Stocks Report*. For survey descriptions and other details, see Explanatory Notes 1.1 - 1.3.

#### Note 6: Average Stock Levels

The graphs displaying monthly stock levels of crude oil, motor gasoline, distillate fuel oil, residual fuel oil, liquefied petroleum gases, and other products provide the user with recent data as well as a summary of data from January through December or from July through June for the most recent 3-year period. This summary takes the form of an average range that includes seasonal variation determined from a longer time period. The

average range represents the historical pattern; it is not a forecast.

These curves are updated semiannually (On April 1 and October 1), by basing the average ranges on a more recent time period. Each 3-year data series is adjusted by dropping the first 6 months and including the most recent 6 months.

For each data series, the monthly seasonal factors are estimated by means of a seasonal adjustment technique developed at the Bureau of the Census (Census X-11). The seasonal factors are assumed to be stable (i.e., unchanging from year to year) and additive. The series is deseasonalized by subtracting the seasonal factor for the appropriate month from the reported stock levels. The intent of deseasonalization is to remove only seasonal variation from the data. Thus, a deseasonalized series would contain the same trends and irregularities as the original data. For crude oil stocks, the derived seasonal factors are very small relative to crude oil stock levels. Therefore, the seasonal factors for distillate fuel oil, residual fuel oil, liquefied petroleum gases and other products are derived using monthly data from 1974-1980. For motor gasoline, the seasonal factors are based on monthly data from 1975, 1976, 1978, 1979 and 1980. In 1977, there was virtually no seasonal behavior in motor gasoline stocks. Monthly stock levels stayed at the same high level for the entire year. In addition, the seasonal patterns in 1973, 1974 and 1977 were not representative of the recent past, and these years were not used in the determination of seasonal patterns for motor gasoline stocks. Because of these differences in the year-to-year seasonal fluctuation of motor gasoline, the evidence for the illustrated seasonal patterns for crude oil, distillate fuel oil, residual fuel oil, liquefied petroleum gases and other products is stronger than is the evidence for the illustrated seasonal patterns for motor gasoline.

In some cases, these seasonal patterns do not show a smooth transition from month to month. For example, the June factor for residual fuel oil is slightly less than the May and July values, making a bump in the curve. As there is little difference in the magnitude of these seasonal factors, it is possible that this variation is due to the small number of observations (7 years) and the data variability.

After seasonal factors are derived, the most recent 3-year period (from January through December or from July through June) is deseasonalized. The average of the deseasonalized 36-month series determines the midpoint of the deseasonalized average band. The standard error of the deseasonalized 36 months is calculated adjusting for extreme data points. The width of the average range is twice this standard error.

The upper curve of the average range is defined as the average plus the seasonal factors plus the standard error. The lower curve is defined as the average plus the seasonal factors minus the standard error.

## Note 7: Movements

Movements of crude oil between PAD Districts are reported on Form EIA-817, *Monthly Tanker and Barge Movement Report*, and on Form EIA-813, *Monthly Crude Oil Report*. Petroleum product movements are reported on Forms EIA-817, *Monthly Tanker and Barge Movement Report*, and EIA-812, *Monthly Product Pipeline Report*. Net receipts is the difference between total movements into and total movements out of each PAD District by pipeline, tanker, and barge. For survey descriptions and other detail, see Explanatory Note 1.2.

## Note 8: Preliminary Monthly Statistics

Weekly data (Forms EIA-800, 801, 802, 803, and 804) are used to estimate the most recent monthly values for the *Summary Statistics* section. Since some of the weekly reporting periods overlap two adjacent months, it is necessary to use weighting factors in the calculation of the monthly values.

To estimate crude oil and petroleum product imports, crude oil input to refineries and production of petroleum products for a specific month, the weekly estimates are weighted by the number of days of that month included in each week, then summed.

End-of-month stock levels of crude oil and the major products (motor gasoline, distillate fuel oil, and residual fuel oil) are calculated in a similar manner, but use only the two weekly reporting periods that cover the end-of-week stocks before and after the end of the month. The end-of-month stock level is calculated by first calculating the stock change between the two weeks. The daily stock change between the two end-of-week stock levels is then calculated. This number is multiplied by the weighting factor of the earlier of the two weeks (the week that covers the last day of the month of interest). This change is added to the earlier of the two end-of-week stock levels to estimate the end-of-month stock level.

Preliminary monthly estimates of domestic crude oil production are calculated as described in Explanatory Note 3.

## Note 9: Notes on Tables

**Note 9.1 Crude Oil and Petroleum Products Overview**  
statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Crude Oil and Petroleum Products Stock Withdrawal (+) or Addition (-), Petroleum Products Supplied, Total Imports, Crude Oil Imports, Total Exports, and Crude Oil Exports appear as labeled in Table 4. Total Production and Crude Oil Production appear under Field Production in Table 4.

- Natural Gas Plant Production is the sum of Natural Gas Liquids and Finished Petroleum Products Field Production in Table 4.
- Petroleum Products Imports is the sum of Natural Gas Liquids and LRGs, Other Liquids, and Finished Petroleum Products Imports in Table 4.
- Total Crude Oil and Petroleum Products Ending Stocks appear in thousand barrels in Table 2.

**Note 9.2 Crude Oil Supply and Disposition** statistics on the referenced line appear in Table 1 of the Detailed Statistics, except where noted.

- Total Domestic Field Production, Alaskan Field Production, SPR Imports, Other Imports (synonymous with Imports Gross Excl. SPR), SPR and Other Primary Stocks Withdrawal (+) or Addition (-), Unaccounted For Crude Oil, Refinery Inputs, and Exports appear as labeled in Table 1.
- Crude Losses and Product Supplied appear as labeled in Table 4.
- SPR Ending Stocks and Other Primary Ending Stocks (synonymous with stocks excluding SPR) appear in thousand barrels in Table 1.
- Total Crude Oil Ending Stocks appear in thousand barrels in Table 2.
- Total Imports appear in Table 4.

**Note 9.3 Finished Motor Gasoline Supply and Disposition** statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.
- Imports, Stock Withdrawal (+) or Addition (-), Exports, and Product Supplied appear as labeled in Table 4.
- Unleaded Percent of Total Product Supplied represents the ratio of finished unleaded motor gasoline product supplied to total finished motor gasoline product supplied, multiplied by 100 and rounded to the nearest tenth.
- Ending stocks are aggregated from ending stocks in thousand barrels in Table 2.

**Note 9.4 Distillate and Residual Fuel Oil Supply and Disposition** statistics on the referenced lines appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.
- Imports, Stock Withdrawal (+) or Addition (-), Exports, and Product Supplied appear as labeled in Table 4.

- Ending Stocks appear in thousand barrels in Table 2.

**Note 9.5 Liquefied Petroleum Gases Supply and Disposition** statistics represent the aggregation of statistics on ethane, propane, butane, butane-propane mixtures, ethane-propane mixtures, and Isobutane. The statistics on the referenced line appear in Table 4 of the Detailed Statistics, except where noted.

- Total Production is the sum of Field Production and Refinery Production in Table 4.
- Imports, Stocks Withdrawal (+) or Addition (-), Refinery Inputs, Exports, and Product Supplied appear as labeled in Table 4.
- Ending stocks appear in thousand barrels in Table 2.

**Note 9.6 Other Petroleum Products Supply and Disposition** statistics represent the aggregation of statistics on natural gasoline, Isopentane, unfractionated stream, plant condensate, other liquids, and all finished petroleum products except finished motor gasoline, distillate fuel oil, and residual fuel oil. The statistics on the referenced line are aggregated from Table 4 of the Detailed Statistics, except where noted.

- Total Production is the aggregated sum of Field Production and Refinery Production in Table 4.
- Imports, Stock Withdrawal (+) or Addition (-), Refinery Inputs, Exports, and Product Supplied are aggregated from Table 4.
- Ending stocks are aggregated from ending stocks in thousand barrels in Table 2.

#### **Note 9.7 Table 1. U.S. Petroleum Balance**

- Lines (1) through (3): Crude oil (including lease condensate) production for Alaska, Lower 48 States, and Total U.S. are calculated by calling the conservation agency in Alaska for Alaskan crude oil production during the month, estimating crude oil production in the United States (see Explanatory Note 3), and taking the difference to equal production in the Lower 48 States.
- Line (5): SPR Imports are reported on Survey Form ERA-60.
- Line (12): Total Other Sources equals crude oil stock withdrawal (+) or addition (-) plus unaccounted for crude oil minus crude losses in Table 2.
- Line (14): Natural gas plant liquids (NGPL) Production equals field production of natural gas liquids (NGL) plus field production of finished petroleum products in Table 2.
- Line (15): NGPL Imports equals the sum of the im-

ports of natural gasoline and isopentane, unfractionated stream, and plant condensate imports in Table 2.

- Line (16): *NGPL Stock Withdrawal (+) or Addition (-)* is equal to the sum of stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate in Table 2.

- Line (17) equals the sum of lines (14), (15), and (16).

- Line (18): *Unfinished oils and gasoline blending components Stock Withdrawal (+) or Addition (-)* equals stock withdrawal (+) or addition (-) for other hydrocarbons and alcohol, for unfinished oils, motor gasoline blending components, and aviation gasoline blending components.

- Line (20): *Other Hydrocarbons and Alcohol New Supply* equals the field production of same in Table 2.

- Line (21): *Refinery Processing Gain* is a balancing item equal to total refinery production minus total refinery input in Table 2.

- Line (23): *Total Other Liquids* equals the sum of lines (18) through (22).

- Line (24): *Total Production of Products* equals crude oil input to refineries plus field production of NGPL and finished petroleum products; plus imports of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of other hydrocarbons and alcohol, unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus imports of unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus field production of other hydrocarbons and alcohol; plus total refinery production; minus total refinery input; plus crude oil product supplied in Table 2.

- Line (25): *Gross Imports of Refined Products* equals imports of LPG plus imports of finished petroleum products in Table 2.

- Line (26): *Exports of Refined Products* equals exports of LPG plus exports of finished petroleum products in Table 2.

- Line (27): *Net Imports of Refined Products* equals the difference between lines (25) and (26).

- Line (28): *Total New Supply of Products* equals crude oil input to refineries plus field production of NGPL and finished petroleum products; plus imports of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of natural gasoline and isopentane, unfractionated stream, and plant condensate; plus stock withdrawal (+) or addition (-) of other hydrocarbons and alcohol, unfinished oils, aviation

gasoline blending components, and motor gasoline blending components; plus imports of unfinished oils, aviation gasoline blending components, and motor gasoline blending components; plus field production of other hydrocarbons and alcohol; plus total refinery production; minus total refinery input; minus crude oil product supplied plus imports of LPG and finished petroleum products; minus exports of LPG and finished petroleum products in Table 2.

- Line (29): *Refined Products Stocks Withdrawal (+) or Addition (-)* equals the sum of stock withdrawal (+) or addition (-) for LPG and finished petroleum products in Table 2.

- Line (30): *Total Petroleum Products Supplied for Domestic Use* equals total products supplied in Table 2.

- Lines (31) through (35) equal the respective products supplied in Table 2.

- Line (36): *Other Products Supplied* equals the sum of natural gasoline and isopentane, unfractionated stream, plant condensate, aviation gasoline, naphtha < 400 Deg. F. for petrochemical feedstock use, other oils > 400 Deg. F. for petrochemical feedstock use, special naphthas, lubricants, waxes, coke, asphalt, road oil, still gas, unfinished oils, motor gasoline blending components, aviation gasoline blending components and miscellaneous products supplied in Table 2.

- Line (37): *Total Product Supplied* is equal to total products supplied in Table 2.

- The sum of lines (38) and (39), stocks of *Crude Oil and Lease Condensate (Excluding SPR)* and stocks held by the *Strategic Petroleum Reserve*, equals ending stocks of crude oil in Table 2. SPR stocks are reported on Form EIA-813.

- Line (43): stocks of *Refined Products*, equals the sum of LPG and finished petroleum product stocks in Table 2.

## Note 10: New Stock Basis

In January 1975, 1981, and 1983, numerous respondents were added to bulk terminal and pipeline surveys affecting subsequent stocks reported and stock withdrawal calculations. Using the expanded coverage (new basis), the end-of-year stocks, in million barrels, would have been:

- Crude Oil and Petroleum Products: 1974 - 1,121; 1980 - 1,420; and 1982 - 1,462.

- Motor Gasoline: 1974 - 225; 1980 - 263; 1982 - 244 (Total) and 203 (Finished).

- Distillate Fuel Oil: 1974 - 224; 1980 - 205; and 1982 - 186.

- Residual Fuel Oil: 1974 - 75; 1980 - 91; and 1982 - 68.
- Liquefied Petroleum Gases: 1974 - 113; 1980 - 128; and 1982 - 103.
- Other Petroleum Products: 1974 - 220; 1980 - 249; and 1982 - 259.
- Stock withdrawal calculations beginning in 1975, 1981, 1983 were made using new basis stock levels.

In January 1984, changes were made in the reporting of natural gas liquids. As a result, unfractionated stream, which was formerly included in "Other Petroleum Products Supply and Disposition" table in the Summary Statistics, is now reported on a component basis (ethane, propane, normal butane, isobutane and pentanes plus). Most of these stocks will now appear in the "Liquefied Petroleum Gases Supply and Disposition" table of the Summary Statistics. This change will affect stocks reported and stock withdrawals in each table. Under the new basis, end-of-year 1983 stocks, in million barrels, would have been:

- Liquefied Petroleum Gases: 1983 - 108
- Other Petroleum Products: 1983 - 248

### **Note 11: Stocks of Alaskan Crude Oil**

Stocks of Alaskan crude oil in transit were included for the first time in January 1981. The major impact of this change is on the reporting of stock withdrawal calculations. Using the expanded coverage (new basis), 1980 end-of-year stocks, in million barrels, would have been 488 (Total) and 380 (Other Primary).

### **Note 12: Changes in Petroleum Industry Reporting**

Petroleum statistics contained in this report for all years through 1980 were developed using definitions, concepts, reporting procedures and aggregation methods that are consistent with those developed by the U.S. Bureau of Mines. Research conducted by the Energy Information Administration in 1979 and 1980 indicated that changes had occurred in the petroleum industry that were not being adequately reflected in EIA's reporting systems.

EIA reporting forms, definitions, and procedures were modified beginning in January 1981 to describe industry operations more accurately. Unfortunately, empirical information is not available to precisely measure the data shortcomings throughout 1980. However, estimates of the magnitudes of differences in the major data series are described below to form a basis for comparing 1979, 1980, and 1981 data.

#### **Motor Gasoline**

Prior to 1979, the EIA product-supplied series for motor gasoline was consistently about 2 percent lower than the Federal Highway Administration (FHWA) gasoline sales data series, which is derived from State tax receipts. This difference increased to about 4 percent in 1979 and 5 percent in 1980. There are two primary causes for this growing difference. First, refinery operations, particularly the flows of unfinished oils and the redesignation of some finished products, were not being accurately described on the EIA survey forms. Second, a large amount of gasoline was being produced away from refineries at "downstream blending stations" to take advantage of provisions in regulations governing the amount of lead that could be added. These blending stations were not reporting gasoline production to the EIA until the data system was changed in January 1981.

Quantitative estimates of the magnitude of the difference—in EIA's gasoline product supplied data in 1979 and 1980 have been made by the EIA and the American Petroleum Institute (API). The following table provides 1979 and 1980 data as published in the *Petroleum Statement Annual*, as well as EIA and API estimates of "recast" motor gasoline product supplied. EIA recast estimates were based upon preliminary monthly information in the *Monthly Petroleum Statement*. The ranges displayed in the EIA column reflect uncertainty in the estimates. Also shown are the FHWA motor gasoline sales statistics for those years. EIA has recently published a study of the quality of these FHWA data.<sup>1</sup>

<sup>1</sup>Office of Energy Information Validation, Energy Information Administration, U.S. Department of Energy, *Error Profile of the Motor Fuel Taxation Data used to Establish and Monitor State Emergency Conservation Targets* (Washington, D.C.: December, 1981).

**Finished Motor Gasoline Product Supplied on Old and New Basis  
(Thousand Barrels per Day)**

	1979				1980			
	EIA Reported	API Recast	EIA Reported	FHWA <sup>1</sup>	EIA Reported	API Recast	EIA Reported	FHWA <sup>1</sup>
Jan	6,830	7,230	7,084- 7,246	6,984	6,323	6,789	6,630- 6,791	6,672
Feb	7,254	7,496	7,389- 7,568	7,538	6,596	6,983	6,831- 7,003	6,830
Mar	7,229	7,414	7,301- 7,463	7,316	6,406	6,753	6,607- 6,768	6,713
Apr	7,055	7,300	7,187- 7,353	7,375	6,800	7,014	6,886- 7,052	6,981
May	7,213	7,429	7,313- 7,475	7,428	6,729	6,954	6,823- 6,984	7,044
Jun	7,191	7,483	7,350- 7,516	7,441	6,657	6,966	6,824- 6,991	7,049
Jul	6,902	7,241	7,105- 7,266	7,299	6,743	6,973	6,960	7,132
Aug	7,330	7,546	7,426- 7,588	7,619	6,648	6,841	6,828	7,090
Sep	6,881	7,122	7,016- 7,262	7,232	6,510	6,692	6,962	6,685
Nov	6,791	7,068	6,956- 7,122	7,142	6,234	6,507	6,516	6,951
Dec	6,730	7,106	6,966- 7,127	7,064	6,632	6,948	6,936	6,993
Average	7,034	7,302	7,183- 7,347	7,309	6,579	6,882	6,806- 6,889	6,925

<sup>1</sup>FHWA gasoline statistics published in their 1979 Table MF-33G, 08-06-80, contain aviation gasoline as well as motor gasoline. Only motor gasoline data are included in published 1980 data. Consequently, the 1979 data shown above were reduced by subtracting aviation gasoline product supplied quantities as published by EIA in the 1979 *Petroleum Statement Annual*. The 1980 FHWA data published in their 1980 Table MF-33GA, August 1981, did not require this adjustment.

### Distillate and Residual Fuel Oil

Distillate and residual fuel oil refinery production statistics through 1980 were adjusted to account for an imbalance between unfinished oil supply and disposition. The reported quantities of refinery inputs of unfinished oils typically exceed the available supply of unfinished oils. It has been assumed that this occurs when distillate and residual fuel oil produced by a refinery is shipped to another refinery, where it is treated as unfinished oil. This oil is then reprocessed rather than used or sold as distillate or residual fuel oil.

For many years (including 1980), the difference between unfinished oil disposition and supply was sub-

tracted from distillate and residual fuel oil production to adjust for this discrepancy. Two-thirds of the difference was applied to distillate, and one-third to residual fuel oil.

Beginning in January 1981 this adjustment was discontinued because there was not sufficient empirical evidence to support it. The following table presents distillate and residual fuel oil refinery production in 1980 as published (adjusted) and on the same basis as 1981 statistics are now being completed (unadjusted) to permit comparison between 1980 and 1981 data series. Adjusted distillate and residual fuel oil product supplied volumes differ from the unadjusted volumes by the same amounts as the adjusted and unadjusted production volumes.

Adjusted and Unadjusted Refinery Production, and Unadjusted Product Supplied of Distillate and Residual Fuel Oils, by Month for 1979 and 1980 (Thousand Barrels Per Day)

1979

Month	Distillate Fuel Oil			Residual Fuel Oil			Unadj. Product Supplied	
	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied	Adj. Ref. Prod.	Diff.		
Jan.	3,043	3,108	65	4,646	1,912	1,946	34	3,594
Feb.	2,888	2,945	57	4,869	1,792	1,822	30	3,625
Mar.	3,019	3,026	7	3,671	1,719	1,723	4	3,243
Apr.	2,945	2,978	32	3,048	1,639	1,656	17	2,524
May	3,066	3,093	27	3,025	1,586	1,600	14	2,517
Jun.	3,153	3,187	35	2,743	1,548	1,566	18	2,601
Jul.	3,305	3,344	38	2,601	1,575	1,594	20	2,471
Aug.	3,321	3,359	38	2,799	1,584	1,603	20	2,570
Sep.	3,354	3,306	- 48	2,599	1,627	1,602	- 25	2,584
Oct.	3,251	3,217	- 34	3,085	1,629	1,612	- 17	2,523
Nov.	3,239	3,200	- 39	3,208	1,736	1,716	- 20	2,795
Dec.	3,221	3,238	17	3,725	1,894	1,903	9	3,022
Average	3,152	3,169	16	3,327	1,687	1,695	8	2,834

1980

Month	Distillate Fuel Oil			Residual Fuel Oil			Unadj. Product Supplied	
	Adj. Ref. Prod.	Unadj. Ref. Prod.	Diff.	Unadj. Product Supplied	Adj. Ref. Prod.	Diff.		
Jan.	3,013	3,093	80	3,794	1,771	1,812	41	3,108
Feb.	2,766	2,888	122	3,834	1,773	1,836	63	3,168
Mar.	2,557	2,690	133	3,312	1,584	1,652	68	2,726
Apr.	2,460	2,554	94	2,729	1,595	1,643	48	2,492
May	2,474	2,610	136	2,538	1,509	1,579	70	2,305
Jun.	2,646	2,721	75	2,392	1,575	1,613	38	2,359
Jul.	2,689	2,783	94	2,343	1,480	1,528	48	2,339
Aug.	2,461	2,582	121	2,258	1,444	1,506	62	2,348
Sep.	2,686	2,726	40	2,627	1,495	1,516	21	2,380
Oct.	2,589	2,650	61	2,981	1,512	1,543	31	2,258
Nov.	2,703	2,823	120	3,069	1,579	1,641	62	2,513
Dec.	2,891	3,052	161	3,776	1,660	1,743	83	2,762
Average	2,661	2,764	103	2,969	1,580	1,634	54	2,562

### Total Petroleum Products

The imbalance between the supply and disposition of unfinished oils and gasoline blending components is included with other products (line 35) in the U.S. Petroleum Balance (Table 1). These imbalances are reported as negative product supplied in the Other Liquids sec-

tion, Supply and Disposition Statistics (Table 2). Since these changes only involve redistribution of the volumes of gasoline, distillate and residual fuel oil, gasoline blending components, and unfinished oils, the total volume of petroleum products supplied remains unaffected by them.

## Note 13: NGL Import/Export Algorithms

Beginning in January 1984, the Energy Information Administration (EIA) implemented changes in the reporting of natural gas liquid (NGL) supply data, moving from a nine-product slate to a five-component slate that corresponds to industry record-keeping practices. Changes could not be made to the import and export systems. Therefore, in order to allocate imports and exports of mixed NGL streams to individual component parts, the EIA developed a statistical algorithm.

### EXHIBIT 1. ALGORITHMS FOR ALLOCATING NGL IMPORTS

PRODUCT SLATE	Ethane	Propane	Normal butane	Isobutane	Pentanes Plus
Natural Gasoline & Isopentane (EIA-814)					100%
Plant Condensate (EIA-814)					100%
Ethane (IM-145)	100%				
Butane (IM-145)			60%	40%	
Butane-Propane Mixtures (IM-145)		40%	35%	20%	5%
Ethane-Propane Mixtures (IM-145)	80%	20%			

### Exports

The export algorithm is based on information gathered from the larger exporters of NGL, who were asked to provide component analyses of the products they

### Imports

The imports algorithm is based on information gathered from the larger importers of NGL, who were asked to provide component analyses of the products they imported during the first six months of 1983. The percentages shown in Exhibit 1 are derived from the weighted averages of the data provided by the importers.

### EXHIBIT 2. ALGORITHMS FOR ALLOCATING NGL EXPORTS

PRODUCT	P.A.D.	EIA Component Slate				Pentanes Plus
		Ethane	Propane	Normal Butane	Isobutane	
Ethane	All	100%				
Propane	All		100%			
Butane	All			100%		
Mixed Streams	I, IV, V II III	30%	40% 25% 80%	60% 15% 20%	15%	15%

exported during 1983. The percentages shown in Exhibit 2 are derived from the weighted averages of the data provided by the exporters. It was necessary to derive percentages by PAD of exportation, due to the wide variation of components in the mixed streams.